



**LAUREA**  
UNIVERSITY OF APPLIED SCIENCES



Katariina Raij (ed.)

# *LEARNING BY DEVELOPING ACTION MODEL*



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Katariina Raij (ed.)

*LEARNING BY DEVELOPING*  
*ACTION MODEL*

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## Foreword

**A**lthough Finland is considered to be one of the countries with a centralised decision-making system for education, the individual characteristics, specific to each university of applied sciences, must be identified. Universities of applied sciences have a great deal of autonomy in determining the content and provision of education as well as co-operating with working life. The running theme throughout the entire establishment of the university of applied sciences institution was working-life orientation and close co-operation with the workplace, which is common to all universities of applied sciences. The individual developmental characteristics of universities of applied sciences are informed both by their geographical area and educational fields and the educational institutions from which they were formed through consolidation. In a university of applied sciences context, a specific trait of Laurea can be found in its pedagogical action model, which combines the three main tasks of a university of applied sciences, i.e. education, research and development and regional development. Learning by Developing (LbD) does not only integrate the main tasks of a university of applied sciences it places students at the centre of working life co-operation and all university operations. LbD was a strategic choice for Laurea that has provided considerable support for the development of a multidisciplinary university of applied sciences. This is the reason that the LbD process was also chosen to be a university of applied sciences core process.

Implementation of the common university of applied sciences pedagogical action model - Learning by Developing- can be described as a successful solution. Over a ten-year period,

Laurea has been nominated five times by the Finnish Higher Education Evaluation Council (FINHEEC) as a Centre of Excellence in regional development and Centre of Excellence in education. The reason for these distinctions is Laurea's proprietary and evolving university of applied sciences pedagogical application, LbD, which is still being ambitiously developed. When students are placed at the centre of workplace co-operation under LbD, networks with the surrounding workplace and business sector are established during studies, thus promoting their eventual employment. The percentage of graduates from Finnish universities of applied sciences gainfully employed in the workforce has been the highest at Laurea for several years. As a pedagogical action model, LbD has also supported the development of R&D and innovation as well as regional development together with businesses and organisations, thus strengthening Laurea's role as a joint Uusimaa university of applied sciences that serves the entire Greater Helsinki metropolitan area.

The development of university of applied sciences pedagogy is a key common goal and, for us here at Laurea, a point of pride, which we want to promote together for the good of students, at both the national and international levels.

Wishing all success in our co-operative endeavours,

Laurea University of Applied Sciences

Jouni Koski  
President

# Introduction

The idea of the present book is to introduce the Learning by Developing (LbD) action model and its ongoing development at Laurea University of Applied Sciences (UAS) in different phases, since the year 2003, when the UAS Law (Finnish Law, Act 351/2003) was given. The three tasks, given by the law, were seen to imply the need to reconcile research and development, regional development and pedagogy as an integrated whole.

Before that, the holistic model of professional competence in the form of the integration of the components (knowing,

understanding, doing and situation management), as well as the integration of different types of knowledge (knowledge in theories and models, embedded in skills and abilities, moral knowledge and experiential knowledge) (Raij 2000; 2003) gave the basis for Laurea's first pedagogical strategy (Laurea 2002). (Figure 1.) The holistic competence model was meant to direct building learning environments, where all the types of knowledge are to be found for enhancing the development of professional ways of action, which are seen as an integration of the identified components.

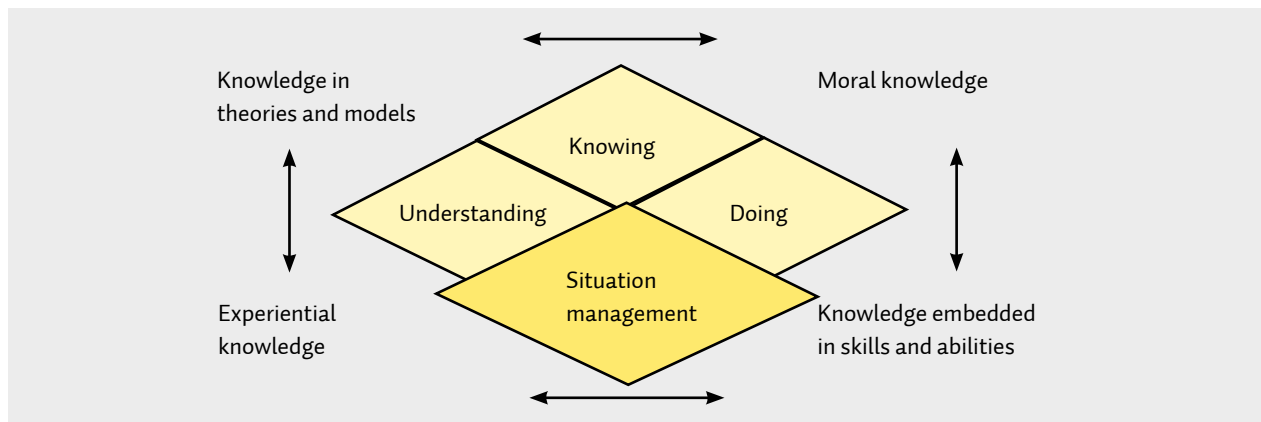


Figure 1. The holistic model of professional competence

The three different phases leading to the recognition of learning by developing were described in the first LbD research report (Raij 2007) as 1) the project based instruction - phase, 2) the integrative environments development - phase (c.f. Fränti & Pirinen 2005) and 3) the recognition of the characteristics and stages of LbD - phase (Raij 2007), which led to identifying a pragmatic learning concept as a basis of LbD.

The development chains of learning theories, in the eighties and the nineties, open different approaches to look at learning: how it used to be compared to how it is now, and we used to learn compared to how we do it today. Learning in behaviourism is seen as the acquisition of new behaviour through conditioning, in which rewards and reinforcements

have an important role (Skinner 1954). In cognitivism, learning is assumed to be basically an information processing process, addressing the distinction between surface and deep approaches (e.g. Marton and Säljö 1976). Humanism emphasises self-directed learning, in which a learning goal is to become self-actualised with intrinsic motivation towards accomplishment (e.g. Patterson 1976). In constructionism (e.g. Phillips 1995), the emphasis is on a learner's own knowledge construction and the active role of a learner; whereas in social constructionism, the importance of social interaction and the sociocultural context of learning are emphasised as they are in the activity theory (Vygotsky 1978; Engeström 1978). In pragmatism (e.g. Dewey (1929), acting together, leading to the development of new ways of action,

as well as the meaning of an interaction between an individual and an environment, are emphasised.

LbD emphasises acting together in projects, which are connected to real-life situations. The resulting outcomes are individual learning, community learning and produced innovations. Learning is seen as a tool for enabling the achievements of new competences needed in working life. Students learn by participating in authentic projects that requires the integration of different types of knowledge, as well as the different component of learning in a professional context.

LbD became Laurea's trademark and strategic value based on success and achievements with applying the model. The measures used consist of the following: the high rates of employment, annual start-ups, positive national and international evaluations and rewards, increasing external research and development funding, successful research and development projects, as well as international research and development networks. They are present in several articles of the book.

LbD has challenged the Laurea staff to renew processes and structures, create new environments, and build competence – based curricula and networks among others. This book is about the LbD development. The idea of the book originated from the observation that the 'LbD - buzz' at Laurea had abated, which gave a signal that, maybe, LbD had become self-evident and the development focus had disappeared. The invitation to writing the LbD articles was sent to Laurea people and to some 'LbD experts', who had already left Laurea. This book is the collection of different, independent peer-review articles that consider LbD from different perspectives. They all share the LbD similarities but offer different approaches and open new challenges to look at the development of the model and its use. The first article in the book is collateral publication based on the given permissions from the original publisher. It was selected to this book as the introduction of the LbD action model and its basis.

**Katariina Raij's** 'Learning by Developing in Higher Education' was originally published in the journal of Education Sciences in 2013, based on the request of the Faculty of Education and Psychology at ELTE University. It gives a holistic picture of how LbD was developed as an action model. The article introduces the LbD action model as a competence-oriented model that integrates competence-producing learning and an innovative research and development project.

**Outi Kallioinen's** article 'Producing Mode 2 knowledge in the LbD action model processes' reflects on the principles and the production of Mode 2 knowledge in the LbD action model. Her theoretical examination focuses on scientific publications related to Mode 2 knowledge, as well as the pedagogical foundations of LbD, referring to the above-mentioned articles (Raij 2013; Taatila et Raij 2012). The article considers all five principles of Mode 2 knowledge production to be demonstrated in LbD but emphasises that it does not allow the overall generalisations on the links between Mode 2 knowledge production and the LbD processes. The article is meant to give an interesting perspective on the Mode 2 production knowledge in LbD.

**Pentti Rauhala's** article 'Leadership in Learning by Developing' aims to ascertain the validation of the theories of management and leadership in higher education in the pedagogical activities of LbD. This article is based on a meta-analysis of empirical research and participating observations. It shows how the leadership of LbD has developed at Laurea and become more process oriented. The article concludes that the leadership of LbD used to be strong in strategic matters, but the communicative element has been too weak, especially in the former years of the LbD's implementation. However, the development has proceeded more towards transformational leadership.

**Vesa Taatila** continues a philosophical discussion in his article 'Some experience-based considerations on the LbD action model'. He challenges constant debate concerning the basic foundations of the model. The article deals with the LbD model and its use from the perspectives of students, teachers, partners, administrators and society. It concludes that though LbD has its benefits, it still needs more scientific research and recommends focusing on making comparisons on the efficiency between LbD and other pedagogical models.

**Jouni Koski's** and **Seija Mahlamäki-Kultanen's** article 'Real-world pedagogical approach to the career planning of students at universities of applied sciences and support for professional identity' deals with the curriculum and career planning. The article considers the challenge given by changes taking place in the world of professions. Existing professional classification does not seem to adequately describe modern expert professions, which challenges career guidance at universities of applied sciences. The article concludes that LbD as a real-work pedagogical approach seems to offer an interesting answer for university of applied sciences pedagogy.

The article by **Outi Ahonen, Tarja Meristö, Liisa Ranta** and **Hanna Tuohimaa**, 'Project as a patchwork quilt - from



study units to regional development', gives an example of how to implement LbD in a working-life-related project work. It describes the Pumppu project as a learning environment, in which the focus is on developing the well-being services of the western Uusimaa region and improving the well-being of the region and its residents. The article concludes that by using students' assignments as the patches, as well as the project coordination as the thread, sewing the patches together to form a quilt, the well-being services can be designed for the region based on the needs of residents and actors in the region.

The article 'Experiencing within a development project for substance abuse rehabilitation' by **Teemu Rantanen, Eeva Soikkeli** and **Elska Kolu**, gives an example of how LbD is used in an authentic, practice-oriented research and development project. The focus is on the concept of experiencing that is identified as one of the characteristics of LbD. The article compares students' and teachers' ways of experience, being based on two diary-like texts. It identifies a wide variety of experiences related to the project's activities, which are seen to support learning in many ways, but teacher and student experiences are similar to each other. The article

concludes that the project activities offer a good opportunity for personal learning for all the participants.

**Katariina Raij's** article 'Entrepreneurship education in the LbD action model – review', inspired by the Young Entrepreneurship - Developing in Action (YEDAC) project, considers how the LbD action model fits entrepreneurship education and how entrepreneurship education could be developed by applying LbD. The article considers the concept of entrepreneurship from a wider perspective, and ends up defining it as a mind-set and a process related to active citizenship. It describes the LbD core entities by introducing the entrepreneurial didactic triangle in the LbD model and concludes to present the process model, as well as the didactic model for entrepreneurship education.

All the articles were reviewed by two independent reviewers for quality, and clarity of the research presented in them. Warm thanks go to the authors and the reviewers for their valuable contributions and visionary ideas.

Katariina Raij  
Editor

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## LEARNING BY DEVELOPING IN HIGHER EDUCATION \*

### Abstract

This article describes the Learning by Developing (LbD) action model developed to meet the future challenges. It takes into account the new role of higher education institutes in a world where changes are continuous and to day's truth is not competent to tomorrow. The article discusses the new ways of 'teaching' by inviting to move from a knower's world to a competent actor's world. It further attempts to rediscover a pragmatic learning theory as a basis for the development of higher education. The article describes the development of LbD by following the changes in the nature of higher education guided by the expectations of the surrounding world. It begins with a competence - oriented approach and concludes by introducing the LbD action model that integrates competence - producing learning and an innovative research and development project.

**Key words:** competence, pragmatic learning concept, Learning by Developing

### Introduction

In Finland the dual model of higher education consists of two complementary systems, which are academically oriented universities (16) and professionally oriented universities of applied sciences (UAS) (25). Both of them are connected to one another via the Bologna process as well as several academic disciplines. Though some of their tasks are similar, they have different focus areas and, because of their roles, also differences in their tasks. The mission of the universities is to develop science by conducting scientific research, to provide education based on research and to educate students to serve their country and humanity. When the Finnish Universities Act was renewed the mission of universities with respect to the third task was widened. Universities are expected to interact with the surrounding society and to strengthen the impact of their research findings and artistic activities on society. They should work in cooperation with the surrounding society and promote the social impact of their research findings. (Finnish Law, Act 558/ 2009.) The UAS Act (Finnish Law, Act 351/ 2003) obliges universities of applied sciences to provide research based education,

to support students' professional growth<sup>1</sup> and to conduct research and development work that supports instruction and promotes regional development in particular. They are multi-field regional institutes, which focus on contacts with working life and regional development. In spite of the differences between the universities and universities of applied sciences, both of them are expected to have an impact on society. They are obliged to be a part of society and to educate students either to serve their country or to promote regional development. The global viewpoints underpinning these changes also challenge higher education.

We can claim that HE institutes have a role in supporting the development of a sustainable and innovative internal market that will foster competition and support investment, growth and jobs in Europe as stipulated in article 29 of the EC Treaty. The Lisbon Strategy highlights knowledge accumulated through investment in research and innovation to be a key driver of long-term growth, which is reaffirmed in the publication 'Common Actions for Growth and Employment' (COM/2005/330). The question is how to respond to the given challenges.

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<sup>1</sup> In addition since 2009 (564/ 2009) universities of applied sciences are responsible for enhancing life long learning.

The expectations address new ways of doing research and development work and of applying research to real-life situations. Some HE institutes have discovered and developed new ways of action by integrating pedagogy, research and development, and regional development and have realized that by acting together with and for users they can be increasingly effective in producing welfare, new competences, and economical and sustainable growth.

Laurea University of Applied Sciences, the fourth largest UAS in Finland, has defined that it has selected a pragmatic philosophy of education as the basis of its pedagogic strategy. The philosophy has been implemented in the form of the Learning-by-Developing (LbD) action model (Laurea's pedagogical strategy 2007). This article describes the principles of the LbD model, which is identified as a competence oriented action model based on a pragmatic learning concept.

## Competence as new expectations in higher education

The concept of competence became an essential topic of discussion in higher education particularly after the European Qualification Framework (EQF) (European Commission 2008) was launched to be applied in the various EU countries. How do we understand competence in higher education? In a business context, the concept has been used as parallel to the concept of knowledge, which embraces factual knowledge, skill, experience, value judgements and social networks. It refers to a capacity to act in a situation. (Sveiby 1997.) Rychen & Salganik (2000), in turn, argue that competence as a concept means more than knowledge and skills. According to them, we can identify cognitive, ethical, motivational, societal and functional competencies.

We can look at the concept of future expertise by following the analysis of competence in use carried out by Ellström. According to him, an individual's competence level is formed of school education and the competences demanded by working life as well as formal exams and formal qualification requirements. Competence in use is related to an individual's actual competence, formal competence as well as the competence required by a job and an officially demanded competence. Ellström also emphasizes that a dynamic view point would take into account changing working life requirements. (Ellström 1998.)

According to Hodkinson and Issitt (1995), a more holistic approach was needed, especially in the caring professions, and they describe the concept of competence by integrating knowledge, understanding, values and skills. In line with

their thinking, Cheetham and Chivers (1996) developed a holistic model of professional competence as a framework that comprises five dimensions. They are cognitive competence, functional competence, personal competence, ethical competences and meta-competences.

Based on my earlier studies (Raij 2000), a holistic model of professional competence was identified as an integration of knowing, understanding, and acting and situation management. In terms of the various types of knowledge, the model is seen as an integrated whole that combines 1) knowledge written in theories and models, 2) knowledge embedded in skills and abilities, 3) moral knowledge and 4) experiential knowledge (gathered by acting and experiencing). The model shares some similarities with Bereiter & Scardamalia (1993), Tynjälä & Nuutinen (1997, 184 – 185), Bereiter (2004), and Tynjälä (2008, 124 – 127), who use expressions such as formal, theoretical knowledge, practical knowledge, experiential knowledge and self-regulation knowledge. Raij's model, however, represents an action based approach. The above-mentioned findings challenged a new kind of learning environment and new working methods so that all the components within the various types of knowledge could be achieved.

In working life, you are expected, as a professional, to manage changing and unexpected situations, which mean that you have to know, understand what you know and be able to act, in order to find new kinds of solutions. Additionally, it was discovered that students perceive their future work, as a learning object, differently. In other words, they possess various orientations, which were identified based on different ways of action during their proceeding studies, and named as modellers, technicians, empathizers and investigators. They, in turn, include different ways of learning (compare meta-competences and personal competence). The holistic model of competence was constructed based on the components with their types of knowledge, and on the orientations to perceive a future work. (Raij 2000.)

In 2005 Delamare Le Deist and Winterton compared the approaches used in five different countries when defining competence. Based on their findings, they argue that a holistic typology is useful in understanding the combination of knowledge, skills and social competences that are required in particular occupations. They present a typology of competence, in which knowledge and understanding are captured by cognitive competence, skills are captured by functional competence and behavioural and attitudinal competences are captured by social competence. Additionally they describe meta-competence as being concerned with facilitating the acquisition of the other substantive competences.

In the European Qualification Framework (EQF) (European Commission<sup>2</sup>2008) , learning outcomes are described as knowledge, skills and competence. Knowledge refers to field-specific facts, concepts and theories; while understanding has not been specifically mentioned, it can be identified in the descriptions of the various learning outcomes. Skills refer to the ability to apply knowledge and to knowing how to do. It covers both the abilities to think in a logical, intuitive and creative way and the capability to use methods, materials and tools.

The EQF defines competence as the ability to use both knowledge and skills as well as personal, social and methodological skills and abilities in different working life or learning situations. It furthermore includes social skills as being able to follow instructions at lower levels and being able to act independently, as well as possessing leadership and management skills at higher levels.

The division used to describe learning outcomes is confusing as such, but the content descriptions can be dealt with as material for finding a model that is parallel to the holistic model of competence.

In conclusion, all the definitions of competence emphasize the meaning of knowledge, but this is not enough as such. Having the skills and abilities to apply knowledge and act and manage situations in an ever changing world of work are of crucial importance. Higher education institutes are part of a society, and the demands (c.f. the Bologna Declaration 1999) to impact on a society are increasing.

## Competence oriented Learning by Developing action model

### Starting points for a pragmatic learning concept

We can ask what should be the philosophical foundation in higher education if the demand to interact with the surrounding society is taken seriously. From a practice-oriented perspective, the question may seem uninteresting; however, as Ardalan (2008) has shown, the differences in educational philosophies lead into major differences in educational practices in higher education. Both pedagogical methodologies and the course goals and contents are affected by differences in basic philosophical assumptions. Whether a lecturer sees her task mainly as providing students with the latest facts of the world or as guiding and facilitating their growth as individuals in the ever changing world is not a question that can be neglected. (c.f. Taatila & Raji 2012, 831–844.)

The above described concept of competence as a holistic model constitutes an action oriented approach. It strongly emphasizes having the ability to do something, of being prepared to engage with an ever changing world. The philosophy of science that is defined as action-oriented is pragmatism ((Dewey 1929; James 1907; Peirce 1992; 1998). It studies the link between action and truth, practice and theory. Based on Dewey's (1931, 31) definition pragmatism is 'the doctrine that reality possesses practical character'. As pragmatists say people, at root, are practical beings. The world is seen as a set of practical actions that are born from thinking. There is no dualism between thinking and doing; they are two sides of the same coin. Action requires thinking, and 'thinking is a mental activity: it is a doing' (Peters 2007, 356). Based on Peirce's view, truth is what comes at the end of an inquiry. An inquiry, in turn, begins when a person does not believe in his or her internal view and struggles to acquire a new belief. James emphasizes the connection between discovered truth and known facts, the interpretation must agree with the known facts. (Haack 1976, 232-234.) In pragmatism beliefs are more important than truth and 'the ultimate test of a belief is the willingness to act on it' (Fendt, Kaminska-Labbé & Sachs 2008). The most relevant is acting on the truth that leads to the conclusion that the foundation of human knowledge is based on the interactions between human beings and their environment. Practical experimentation and intervention are seen as an essential part of studying human practices. (Miettinen 2006, 391-400.)

When we consider the meaning of learning in a pragmatic world, the most influential developer of pragmatism is John Dewey. He sees thinking and reflection as a 'means of conducting transformational transactions with the world, a means of changing or reconstructing the world' (Sleeper 2001, 3) He also argues that 'thought functions in the experimental determinations of future consequences' (Dewey 1925/1988b, 14). Pragmatist philosophy exists in reality, where change is constantly taking place, and human beings are active agents and conductors of transformations, either by their thoughts or by their actions.

According to Dewey (see Learning by Doing) school is of life, not for life, and learning is seen as a tool for producing new habits of action through the continuous interactions between people and their environment. A pragmatic learning concept emphasizes collaboration, the activities that change individuals and the environment, and the role of experiences and interaction. Learning is active and consists of restructuring and building experiences, of handling new situations and of acting in a purposeful way.

The active nature of learning is also stressed in the long-time dominated constructive learning concept, although with

<sup>2</sup> The EQF was approved as a framework by the European Parliament and Council in April 2008. By 2012, at the latest, all certificates should mention the EQF level of learning outcomes achieved by graduating students.

different emphases. Constructivists conceptualize learning as the creation of new knowledge and the construction of cognitive structures, whereas an action-oriented, pragmatic learning concept recognizes learning as a tool with the purpose of formation of habits of action. In the pragmatic learning concept, knowledge is linked to the ways of action that assist in getting along with the ever-changing world. (see Kivinen & Ristelä 2003, 365-366.) Language, words and concepts are used as means of interaction, communication and coordination. Reality is built through interaction between action and thinking. In pragmatism action is related to acting and interacting in a purposeful way in the world. People are, at root, practical beings and find actions rewarding (see Pihlström 2006, 150-151). People and the environment change through action. Activity is not primarily cognitive; as it is in constructivism but referring to Dewey (1980) learning and knowing are affairs of doing. In a pragmatic learning theory, learning is always active but based on experienced actions and their consequences, which lead to new habits of action (e.g. Kivinen et al 2003, 365-366).

Philosophy of education categorizes the pragmatic learning concept as an interpretative paradigm, where the social world undergoes constant change and renewal, and the ability to function in a constantly changing world and participate in the change is vital. Learning is understood as a process for changing or reconstructing the world through the development of practices. The interpretive paradigm sees the social world as an ever-changing place which can be constantly improved. A researcher interprets situations, but knows that the rules determined in the first situation are not necessarily true in the next situation. This view, in turn, means that the goals of education are not so much to give students facts about the way the world works, but to make sure that students 'learn the process of discovery and self-sufficiency as much as the facts that are discovered' (see Ardalan 2008).

### Towards the LbD action model

The Finnish system of higher education is built on a dual model consisting of 16 universities and 25 universities of applied sciences (UAS). The tasks of the UASs, presented in the UAS Act (2003/351), are pedagogy, regional development and research and development. At Laurea UAS these tasks were seen as an integrated whole from the beginning. The decision made led to construct the role of a teacher in a new way as a pedagogue, regional developer, and researcher and developer (e.g. Raij 2003, 42 - 58). Furthermore, the holistic model of competence described above (Raij 2000) was applied as the framework for Laurea UAS' pedagogical strategy in 2002. This, in turn, opened the door to looking at a learning environment as an enabler for the development of new activities.

The task of regional development, which is emphasized in the UAS Act, brought authentic working life projects to Laurea, in which teachers as facilitators, working life partners and students work together. Many of the projects were found to be successful. New innovations were discovered and students seemed to be very motivated and eager to develop new ways of action as competences. Based on the collected experiences, a real working life-related R&D project seemed to form a needed learning environment. Initially, the need to impact and renew the working life sector led to project-based education (Raij 2003, 42 - 58). Furthermore, the new practice challenged Laurea to develop and construct learning environments that enable the integration of the aforementioned tasks in the form of meeting rooms, workshops and laboratories (Fränti & Pirinen 2005).

New ways of action in project-based education raised some interesting questions that needed to be studied:

How did genuine working life-oriented R&D projects change the nature of studying?

How did working life-oriented R&D projects integrate pedagogy, regional development and research and development?

Recognizing the impact of the changes on the character of learning in projects, steered research work and led to the recognition of the characteristics and stages of the Learning by Developing (LbD) action model. This interest, in turn, led to select phenomenography to be used as a research method. Phenomenography as a special qualitative research method, initially developed by the Gothenburg group, is not interested in the being of a phenomenon, but in the conceptions that people have of it. It focuses on the ways in which human beings perceive their world. Phenomenography was originally developed for studies on learning and it emphasizes the learner's experience, understanding, and conceptualization and analysis of learning assignments in a specific context. The perspectives of 'what' and 'how', used in relation to a specific cultural context, explain the construction of different conceptions. What we see depends on how we see it. (e.g. Marton & Säljö 1984, Marton 1995 and Uljens 1993.)

The research material was first collected by interviewing lecturers (n=6), who possessed successful experiences in carrying out R&D-projects together with students and working life representatives. The experience and knowledge gained through the process by those participating in the research was made use of by systematically collecting information on how conceptions changed as the result of the observations. The interviews also took into account the lecturers' ideas regarding best practices, i.e. how they would change or modify the next research and development project they participate in. Second, the lecturers (n=25) participating in

seminars related to the training programme on innovative teaching described the processes related to the progress of their own development projects, as well as their own learning processes. Finally, participation in two development projects involving lecturers (n=4), students (n=8) and working life partners (n=6) facilitated further the systematic gathering of information. Reliability was all the time checked by the researcher by asking questions and making summaries. While classifying the stages of learning by developing, the participants' conceptions regarding completed and ongoing development projects were taken into account, as well as their experience-based opinions regarding what development projects require and how the process could be improved.

### The stages of Learning by Developing action model

Based on the analysis of informants' conceptions, the stages of LbD action model were identified as well as the characteristics of the model (Raij 2007). The LbD action model centres on a development project that is genuinely rooted in the world of work, requiring collaboration. LbD is based on authentic partnerships between lecturers, students, working life partners and clients as end users. A project forms a learning environment, where progress is made through the

identified stages and the outcome is learning in individuals that is seen as new ways of action, leading to personal professional growth, as well as learning in a community, and finally the production of new knowledge in the forms of new products, services, processes, working models and working culture.

The LbD action model comprises the following complementary stages: a) identifying the phenomenon of the R&D project with its concepts and relationships between concepts; b) reflecting on the meanings of previous research findings and solutions; c) predictive recognition and description of processes related to the project, which makes possible both an abductive hypothesis (an initial presumption based on prior clarifications, facts and discoveries) and a personal curriculum; d) acquiring tools that are existing theories and models, subject related concepts, and instruments for doing; e) acting together, which encompasses the creation of new habits of action and problem-solving skills; f) continuous evaluation of the project and personal learning process (the consequences of activities); g) sharing experiences and creating new meanings; h) recognizing and evaluating achieved competence; i) assessing the impact of the project; and j) sharing, disseminating and productizing the outcomes (Figure 1).



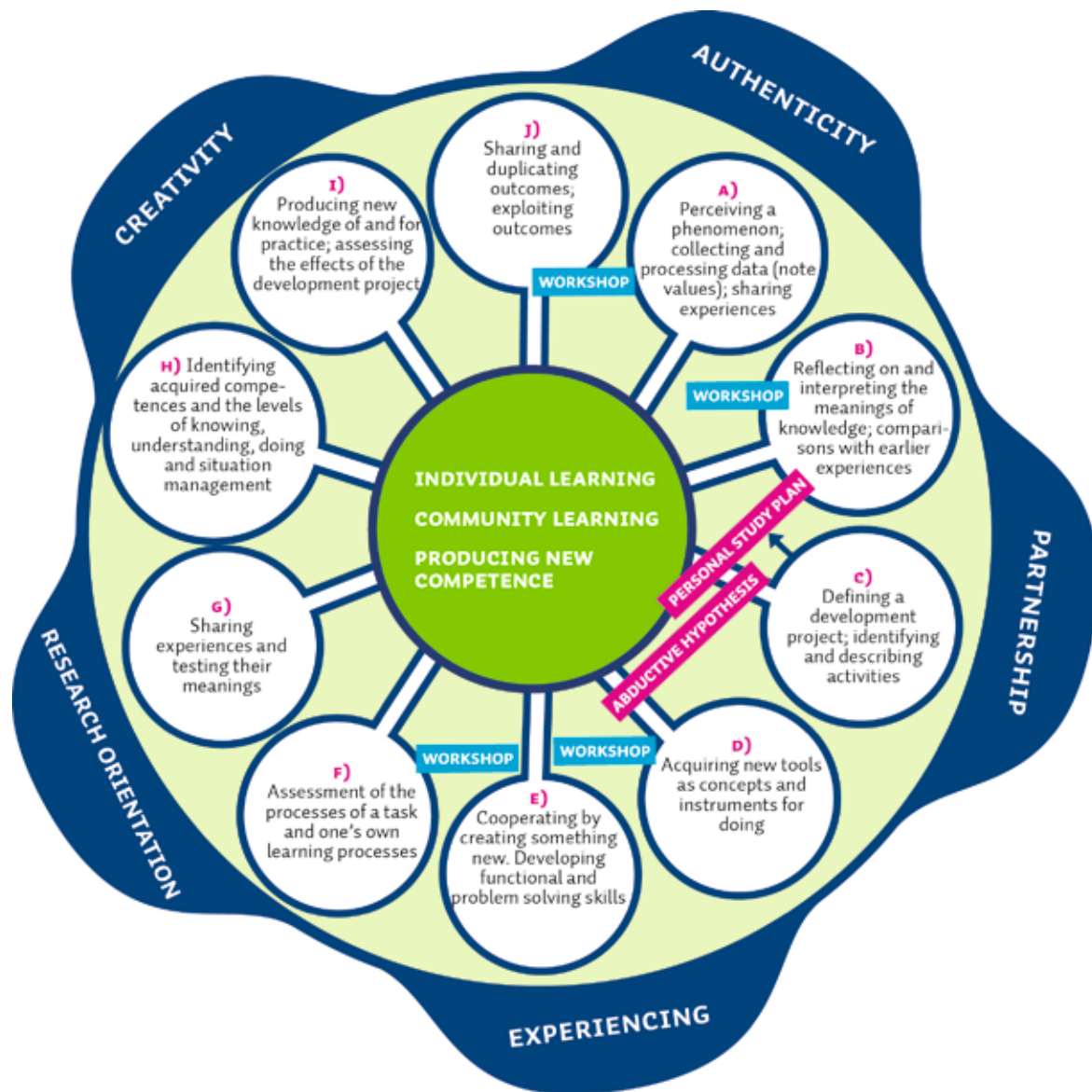


Figure 1. Recognised stages of the LbD model that steer implementation

It is important to notice that the stages form an integrated whole but as part of a process they can be identified in different orders depending on the consequences of earlier experiences. Different workshops (laboratories) provide students with the needed tools for R&D projects, including the concepts, theories and models for understanding phenomena as well as different skills for encountering, collaborating and working with one's hands. The tools are developed and applied by students when the project proceeds and students' responsibilities increase. Personal learning, which is demonstrated through new forms of action in the project and the development of the project, are followed by assessment. In this process the types of knowledge can be used as an evaluation tool.

The LbD integrates competence-producing learning and an innovative R&D project. The stages are built by the new learning possibilities that are created as the R&D project progresses. When examining the stages of the LbD, the individual and community learning that form the focal point of the model, comes from building and internalising a new kind of self and group identity, which are the objectives of professional growth. Sharing experiences, mutual reflections, and awarding and testing meanings form the dialectics between the individuals and their environments.

According to the teachers, experienced in the LbD, the defining characteristics of the LbD are authenticity, partnership, trust, creativity and an investigative approach (Raij 2007).

Authenticity arises from the genuine working life projects that form the learning environment. Partnerships are built on trust and on a commitment-inspiring agreement. All of the partners participate as equals, sharing experiences and finding meanings for consequences in order to produce new competence in their varying roles and responsibilities. There is room for every partner's creativity, which also leaves room for professional growth. The production of new knowledge and the development of competence become evident as the work progresses.

Authenticity refers to a genuine working life connection. A working life-oriented R&D project is viewed as a learning environment that enables the formation of new habits of actions. The progress of an R&D project opens new doors and creates situations where previous ways of action are no longer sufficient and must be replaced by new ones.

Partnership refers to cooperation among students, lecturers, working life partners and users, and it features mutual commitment. Partnership is built on trust and is characterized by equality. It enables continuous interaction with the learning environment. Joint efforts require that the involvement and different competences of each participant enable the formation of new habits of action and the discovery of solutions that transform practices.

Experiencing can be understood from different viewpoints. First, experiences with given meanings construct competence. Second, experiencing can be examined on the basis of processes that lead to new forms of action. When the consequences of established forms of action turn out to be insufficient in a new situation; the need arises for reflecting on personal experiences and creating new habits of action.

Creativity is vital for bringing forth something new. The starting point of LbD is the ability to function in a constantly changing world; hence, acting within the context of change is a natural approach. As a result, new ways of action require creative and curious involvement in activities that renew the world of work.

The requirement for a research orientation arises within the context of higher education. In a pragmatic approach, truth is linked to inquiry as it transforms in the course of the study. At Laurea, the mission of universities of applied sciences is seen as a comprehensive whole that integrates the tasks of pedagogy, regional development and research and development. Higher education is recognized from the perspective of an investigative approach; in a higher education context, developing working life and producing new types of innovation are closely linked to research. (Figure 2)

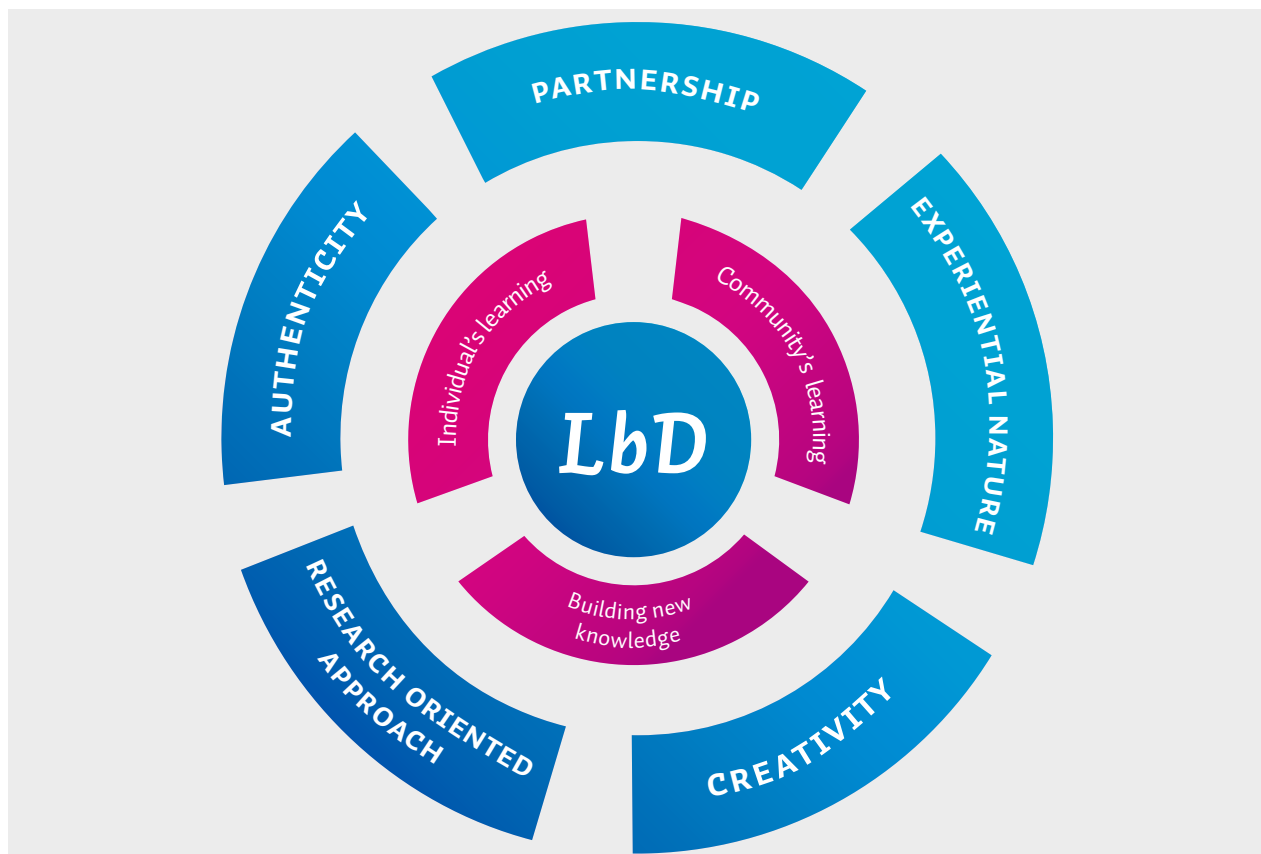


Figure 2. The characteristics of the LbD model



The LbD shares similarities with certain constructionism-based learning theories and the theory of activity. For example, Bereiter (2004) sees learning as a process that transforms an individual's internal knowledge structures, which creates new ideas and thoughts and deepens a community's competence. Hakkarainen, Lonka & Lipponen (2004) have developed a theory of research-oriented learning based on problem-solving by combining elements of Bereiter and Scardamalia's (1993) theory of knowledge construction and Engeström's (2001) theory of expansive learning, which is based on the theory of activity. Practical experiences take a conceptualising role when they are tested in practice in order to create 'conceptual artefacts' (Hakkarainen & al., 2004, 299–302). However, the LbD action model focuses on acting together and discovering new ways of thinking and doing in order to be able to manage changing situations. Learning is regarded more as a tool that facilitates the achievement of competences.

### New ways of action in higher education addressed by the LbD

In the LbD action model the role of 'a teacher' is multifaceted. A pragmatic learning concept does not have a place in traditional classroom teaching. A teacher working at Laurea has many roles depending on his or her own responsibilities within the LbD project. In a workshop where students are seeking new tools, a teacher is responsible for transmitting culturally and historically advanced intellectual actions relevant to the various professional fields (c.f. Engeström, 2001) and the latest substance-specific knowledge in the forms of concepts, models and theories. In the projects work, a teacher acts as a facilitator and partner for students and the developer and researcher central to the project's objective. The idea is to give space to students and to facilitate their competence construction processes in relation to practical experiments. The teacher develops tools together with the students. Through all of the interactive processes, she is involved in assessing the achievements of students' learning outcomes. Assessment is challenging because it has been understood and accepted that students can learn and will do so in different ways with different contents.

In the LbD Guide (2011), the model was considered a challenge for the professional development of lecturers. Based on the vast practical experiences since 2005, the lectures' new roles can be identified as follows: 1) as preparers and organisers of the LbD implementation process; 2) as implementers; and 3) as evaluators. At the beginning of a new LbD project, one does not really know what kind of learning will take place. Since the project has connections with authentic working life, the learning outcomes cannot be 'wrong' as such, but they can be something unexpected. Therefore, it is

important that learning outcomes are described as competences needed in a complex and ever-changing working life (c.f. Ardalan 2008).

Along the way from identifying the LbD action model towards nominating the model as Laurea's strategic choice and finally as Laurea's trademark (LbD Guide 2011), we can see many developmental phases. At first, it is important to notice that recognizing the impact of changes on the character of learning in projects led to the development of the LbD action model. Thus, the practices at Laurea had already begun to change; these changes were guided by the integration of pedagogy, regional development and research and development. Second, a great deal of attention was paid to training Laurea's staff from the beginning. Separate training programmes were carried out for the whole staff at different campuses. During the years 2004 – 2006, the Professional Development (PD) training programme was planned and implemented together with Tampere University. There were 25 senior lecturers in the first group, who were supposed to act as the LbD mentors on their own campuses after a two-years' education process. The impacts were seen as transformative teaching, and they were published in the form of a report in 2006. The PD programme was reorganized during the years 2008 – 2009. The results were discussed in several LbD presentations at the European Conference on Educational Research in Vienna in 2009. Since the year 2008, Laurea has hosted the annual 'Learning by Developing – New ways to learn' international conferences, which makes it possible to share, display and further develop the model. Furthermore, since 2002, annual development seminars for the staff and regular development seminars at the different campuses are used to enhance transformative teaching; at first they were affected by project-based learning, and later by the LbD. It can be seen that the more the LbD model was rewarded the less it has been resisted.

We can say that before the LbD, most of Laurea's staff emphasized the construction of new cognitive processes. Today, it is clear that working and acting together with students, and facilitating their development processes gives students the possibility to develop new habits of action and to participate in the development of new innovations. The statistics (Laurea 2010) partly can be seen as evidences of the success of the LbD.

Developing the LbD model by studying the impact of changes on the character of learning in projects led additionally first to the development of campuses with different workshops, test labs and living labs, and second to the development of a competence-based curriculum. These changes made it possible to successfully implement the LbD. Competence (pp. 2 – 4), in a curriculum, refers to broad areas of

expertise, which describe the ability to function as working life developers and reformers. It emphasizes the development of new habits of action as the results of learning. The National Qualification Framework, which is based on the European Qualification Framework (levels 6 and 7) serves as the starting point for learning outcomes.

Laurea's learning environments have been developed from the perspective of higher education competence as a working-life oriented R&D project as well as a physical, virtual and psychological space. Learning environments with laboratories and workshops, which are needed in authentic research and development projects, enable joint activities, evaluation and the development of personal ways of action based on experiences.

The LbD offers the possibility to share one's own experiences and conceptions not only with students and their teachers, but also with working life experts and end users. In this way, real dialectics with different opinions and conceptions are tested and situational truths discovered after conducting a series of practical experiments. The LbD also includes abductive reasoning with hypothesis and the building of models in the face of the unknown. The assumptions will be tested and proved in working life-related R&D projects by integrating knowledge, skills, values and experiences in action.

## Evaluating of the LbD model

The LbD model is evaluated in several different ways. The Laurea staff regularly collects feedback from students and working life partners. On the basis of conclusions, improvements are made. The impact of R&D work is evaluated by the Ministry of Education and Culture based on the number of credits completed in the R&D projects, the number of project base theses, and the graduates' employment rates. The improvements in these numbers (Laurea is at the front of the line) have been seen following the development of the LbD model. Concrete evidence of the successful integration of students into the surrounding society can be seen in the fact that the graduates of Laurea have the highest employment rate (89.9 %) out of all of graduates from the universities in Finland (Laurea 2010).

The LbD has been evaluated twice by the international evaluators. In 2007, it was studied and compared with other widely used initiatives in higher education. The fundamental issues that the evaluators considered included a comparison of the LbD and other existing projects and problem-based learning models. Furthermore, they focused on the sustainability and scalability of the model. The evaluators needed to find out about current experiences and gain insights from those who deliver, design and develop the whole programme

of activity. The evaluation team got acquainted with the scholarly literature and publications provided by Laurea, and they interviewed stakeholders; students, alumni, staff, faculty and external influencers and policy makers. The evaluation process was conducted during two detailed visits, which consisted first of a planning meeting, followed by site visits and interviews, all of which were organised in a spirit of openness and trust.

The comparison showed that the major benefits of the LbD are based on the sense of ownership of creating the model. According to the evaluators, 'The LbD is values driven and takes a more holistic view of students than would be the case where projects or problems are the focus. The LbD is also focused on ensuring that students can 'do things' rather than just be able to repeat answers in exams. LbD recognises the need to enable students with investigative and social skills, alongside providing them with knowledge expertise in their chosen fields of study.' In conclusion they identified the following as the strengths of the LbD: the growth of independent thought, self-confidence, a highly experiential atmosphere, a high degree of responsibility, early experiences of personal responsibility for results and duty to colleagues, early experiences of having people relying on you and experiences with equality. In terms of how to further develop the LbD, the evaluators pointed out that the model needs to be made more transparent, more focus should be placed on project management, student guidance and competence evaluation and that the model should be better institutionalized. (Vyakarnam, Illes, Kolmos & Madritsch 2007.)

In 2009 a follow up evaluation was conducted. The material was collected by interviewing focus groups; project managers, students, staff, faculty and external influencers and policy makers from all of the Laurea campuses. The evaluators noticed that in two years, the meaning of the LbD had become more unified. However, they also noticed that there is a continuous need to share the conceptions and knowledge concerning the basis of pragmatic learning theories. Further, the users of the LbD should clarify the purposefulness of the model and use clearer language to support the students' learning processes in research and development projects. According to the evaluators, 'finding and confirming a common purpose should be the top of priority. There is no shortage of talented individuals in Laurea but they need clear, supportive structures, operational systems, communication channels within and across sites. They need a well networked community culture based on success stories, sense of pride and collective identity'. (Vyakarnam & Illes 2009.) The recommendations and development objects stated by the evaluators have been taken into account in Laurea's quality assurance programme, which focuses on the development of practices.

Kallioinen (2008) analysed the written feedbacks from Laurea's first-year students during the years 2006-2007. She collected students' feedbacks from the fields of business management, hospitality management, security management, and business information technology; altogether, a total of 1204 respondents. They described their experiences with the Learning by Developing -model and how the model has enhanced their learning. She concluded that the LbD model can advance significantly the general working life readiness of the students, and also enhance the quality of their learning options. The LbD facilitates cooperation and the development of partnerships and also made it possible for students to act as partners. The growth and development of self-directed learning challenged the creation of new guidance practices. Through the LbD model, new competences and collaborative knowledge creation processes were born. Additionally, Taatila (2007) found in his study some evidence that students participating in the LbD learning consider themselves to be more competent in practical situations than their peers. The students become more integrated into their surroundings before they graduate, since they have been working with numerous organizations already during their study years. They also know the requirements and pace of modern working life, and will likely require less time for induction than the students with less practical experience.

Laurea has furthermore participated in the project of Quality Teaching directed by the OECD in 2007-2010, and in the FLLEX-project (LLP-KA1SCR) aiming to enhance lifelong learning in 2010 - 2012. The role of the LbD was at the centre of both projects. With the Quality Teaching project, the focus was on transformative teaching, while the FLLEX project focused on how the LbD enables lifelong learning. Both projects can be seen as examples of Laurea's commitment to the ongoing development of the LbD action model.

Laurea is the most awarded UAS in Finland, with five Centre of Excellence nominations from The Finnish Higher Education Evaluation Council (FINHEEC). Laurea has been nominated as a Centre of Excellence in regional development for the years 2003-2004, and 2006-2007, and in education for the years 2004-2005 and 2008-2009, and as a Centre of Excellence 2009-2012, when the evaluations of regional development and education were integrated. One of the criteria has been the integration of research and development, regional development and pedagogy. We can say that the pragmatic LbD action model has created several benefits in these areas.

The impact of the LbD action model on the surrounding society is multifaceted. Local organizations receive a constant stream of new ideas, and innovations and a developing workforce. R&D projects are carried out in cooperation between public, private and third-sector organizations, all of

which give space to the integration of different competences and make it possible to go forward. Similarly, organizations offer the university a constant stream of interesting research and development subjects and share competences based on their own experiences and the requirements of a job. (c.f. Taatila & Raij 2012.)

## Conclusion

This article describes the LbD action model, which has been developed at Laurea University of Applied Sciences as a way to respond to the challenges, which demand that higher education institutes take a more active role in supporting the development of a sustainable and innovative internal market that will foster competition and support investment, growth and jobs in Europe (c.f. The Lisbon Strategy 2000). At the European level, investment in research has been integrated with investment in innovation, which is seen as a key driver of long-term growth.

The LbD action model is competence oriented; building the holistic model of competence can be seen as the starting point for developing the model. Competence has also been highlighted in the European Qualification Framework. Although the division used (knowledge, skills and competence) is problematic, the holistic model of competence can be identified in the descriptions of the learning outcomes.

The LbD is based on a pragmatic learning concept as it was introduced in the earlier study carried out by Taatila and Raij (2012, 831 – 849), which discusses how the LbD model fits the pragmatic philosophy of education. Learning the process of discovery and self-sufficiency, as Ardalan has pointed out, is also evident in Laurea's LbD model, in which real changes in the world of work and new habits of action are the expected outcomes; these same outcomes are the focus of pragmatic learning theories. Competence is expressed as new ways of action. With the LbD a real doubt as an identified problem or a discovered new idea form a starting point for an inquiry, which leads to form new beliefs and new habits of action. Learning can be seen as a tool in this process. This is also in line with Pihlström (2006, 150 – 151) and Kivinen et al (2003, 363 – 375). The LbD model follows the ideas of Dewey, who regards inquiry as an attempt to solve a problematic situation that has arisen as the result of an experience. Learning consists of restructuring and building experiences, handling new situations and acting in a purposeful way. Dewey's view of learning and knowing as an affair of doing, and learning as a formation of new habits of action can be related to the present topic of future expertise. I dare to claim that the LbD has rediscovered Dewey's concept of Learning by Doing within the context of higher education.

If we have an authentic working life-related research and development project as a learning environment, as is the case within the LbD model, acting together with students by developing can be assumed to lead to the types of competences needed in future working life. Aiming to future expertise also challenges the development of curricula in higher education. Formal exams should be based on competences, which make it possible to develop new ways of action, and which in higher education lead to situation management within an ever changing world of work. The need to meet formal qualification requirements presents a challenge when renewing the curricula. The requirements should also be flexible and more future oriented.

The biggest change occurs with respect to a teacher's/ lecturer's role. In the LbD, a student is an equal partner, and building a partnership between students at different levels of study and working life representatives (public, private and third sector organizations) introduces new challenges for a lecturer. Lecturers encounter a number of development challenges in the LbD model. The traditional teaching role of distributing or processing information is inadequate within the context of a pragmatically-oriented university. It is time to network and co-develop and co-produce creative innovations. To acquire the needed tools for R&D projects, LbD lecturers function as tutors, and partners as well as recognizers and acknowledgers of competence, developers and researchers in R&D projects, and supporters and mentors in workshops. As Ardalan (2008) pointed out, both pedagogical methodologies and the goals and contents of a course are affected by differences in basic philosophical assumptions, which highlights the meaning of philosophical foundations.

We can ask if project based 'going forward' is too sporadic in nature and question if it offers enough possibilities to achieve the competences needed. A competence based curriculum

is an essential part of the LbD model when it comes to achieving the new ways of action described in the learning outcomes. The curriculum plays a role in guiding students and lecturers when they prepare working life-related R&D projects and make decisions to participate in them. On the other hand, we can always wonder if we can be sure that a student who learns about a certain topic and passes an exam, on that topic really understands the subject deeply and will remember it for a long period and be able to use the knowledge later on.

The purpose of a pragmatic learning concept is not to construct cognitive structures and a knowledge base, but to create new habits. Research knowledge and its adoption play an important role in the development of new ways of action, but only as part of whole. The holistic model of competence is seen as an integrated combination of knowing, understanding, doing and managing situations. The lecturer is responsible for creating opportunities to construct this wider entity. Every new R&D project offers a new adventure for participants by presenting a new situation where earlier ways of action are not enough as it will be in an ever changing social world. The question still remains; how to do it in a purposeful way?

The global economy and the need for new kinds of solutions and service innovations also challenge higher education institutions. We can ask how to coach our students for the future, which can be seen as an ever changing world of work and unexpected new situations. It is clear, more now than before that the present solutions are not good enough and that the world, as it is described in study books, will no longer exist tomorrow. Students should be prepared to create new habits and be given the possibility to see how the world is changing around them. The LbD action model enables them to face the future challenges. ■

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## PRODUCING MODE 2 KNOWLEDGE IN LbD ACTION MODEL PROCESSES

### Abstract

The aim of this conceptual article is to reflect the principles and the production of Mode 2 knowledge in Learning by Developing (LbD) action model processes. Learning processes at Laurea University of Applied Sciences are tightly integrated in research, development and innovation activities on each of the seven multidisciplinary campuses. The main focus in these processes is placed in transdisciplinarity, in order to generate new competence and innovation for all parties (students, teachers, working life partners) and for the region. Along with the principle of transdisciplinarity, in most of the LbD cases, other principles of Mode 2 knowledge production are applied in action. The theoretical examination focuses on scientific publications related to Mode 2 knowledge as well as the pedagogical foundations of LbD. In LbD processes, it is very common that all five principles of Mode 2 knowledge production are demonstrated. Mode 2 knowledge production allows operators in planning research and development processes towards more participatory, dynamic and creative forums of new competence production. Mode 2 knowledge production provides space for shared ownership of competence production, new ideas, intuition and the evolution of new problems in network-based processes. By character, this reflective article does not allow for overall generalisations on the links between Mode 2 knowledge production and LbD processes, as they are always very unique, situational and contextual by nature. It merely gives an interesting perspective on the Mode 2 production of knowledge in one particular learning process in higher education – namely, Learning by Developing, developed at Laurea University of Applied Sciences since year 2000. In the future, it would be fruitful to collect data in order to dig deeper in this area.

**Key words:** Mode 2 knowledge, Learning by Developing, knowledge production

### Introduction

In recent years, research activities and their impact have become globally more and more important for societies, because we need new competence and competent experts to meet future needs. Examining the new structures of interactive and collaborative research activities of universities, Horwath (2009, 22-23) particularly emphasises that society, the political system, the structures of business operations, science and the research system must be steered towards active mutual interaction. Technology and innovation are developed as a result of complex interactive processes - not only within technology, but merged with the economic, legislative and social environment, where they are also

influenced by government policy and programmes, financial instruments, laws and regulations, economic boundary conditions, the role of social partners and the education and research system responsible for knowledge and competence. (cf. OECD 1992; Soete & Arundel 1993; Gibbons et al. 1994; Etzkowitz, Webster & Healey 1998; Hessels & van Lente 2008.)

The above-mentioned framework gives a good arena for universities of applied sciences operating actively and collaboratively with stakeholders in the regions. The Learning by Developing action model at Laurea UAS has especially been created, designed and thoroughly evaluated to enhance the integration of learning and RDI activities in competence

and knowledge production in professionally oriented higher education institutions (Raij 2013; Taatila & Raij 2012; Kallioinen 2013).

OECD's 2006 theme analysis on higher education policy states that, as far as research and development is concerned, Finland has gained a reputation on a European level for its innovative research activities and research and development strategies that particularly focus on the knowledge economy (Davies, et al. 2006). Finland continues to score high on the European Innovation Score Board year after year. The national goal of today is to lift up Finland to be the most competent nation in the world, which means a huge demand for top-level education and research.

From the perspective of regional development, OECD researchers emphasise that new knowledge is created in the context of the employment sector as well as at institutes of higher education, and that undergraduates should be placed at the heart of R&D activities. Referring to R&D at universities of applied sciences, Davies et al. (2006) mention Mode 2 knowledge production, which has a strong user orientation and arises from genuine problem solving. According to the OECD study, research and development activities of universities of applied sciences should specifically promote economic, social and cultural development in the region. This OECD study, with its recommendations concerning Mode 2 knowledge production, user-orientation and genuine problem solving, are all in line and coherent with Taatila and Raij's (2012) article, *Philosophical Review of Pragmatism as a Basis for Learning by Developing Pedagogy*, in which the LbD pedagogical model is opened up from the philosophical point of view.

Applied research and development activity with an emphasis on regional development is an important aim for all universities of applied sciences in Finland. In the past few years, in the structural reform of higher education in Finland, this topic has been widely and actively discussed nationally in order to develop the national and regional innovation system and clarify the dual nature of the Finnish higher education system. This produces new, collaborative knowledge and competence and searches for creative solutions for problems and challenges at various levels. The importance of applied research is clearly emphasised when combining regional competence, participating in networks and utilising different partnerships in shared processes. Research and development at all Finnish universities of applied sciences is characterised by a functional and experiential approach, which corresponds to Stake's (1994) notion on the importance of producing expertise in knowledge transfer.

Research and development function at universities of applied sciences has expanded considerably in recent years, and established a strong role within regional innovation systems. The development has brought its challenges; the main challenges for the impact of research and development include the production of new knowledge, competence and innovation in research and development processes. At the same time, universities of applied sciences need to define the concept of applied research more clearly in relation to the research activities of academic science universities. The research, development and innovation function of Finnish universities of applied sciences was internationally evaluated by a team nominated by the Finnish Higher Education Evaluation Council (FINHEEC), and it gave a good overall view in the width, depth and development of this function (see Maassen et al. 2012). Created by Gibbons et al. (1994), Mode 2 knowledge production brings interesting perspectives to the interpretations of applied research as well as to the mechanisms of new competence and knowledge production. These perspectives lead us also very close to the core of the Learning by Developing action model with its five dimensions: authenticity, partnership, RDI-orientation, creativity and practical experimentation as well as its aims in producing new competence in RDI activities. (Raij 2007).

Public and private sector, organisations, various companies and society as a whole require continuously renewable competence, new products, services, work methods and operating models, which are on one hand generated as a result of research, development and innovation activities at universities of applied sciences. This article looks at the mechanisms that generate results specifically from the angle of Mode 2 knowledge production, and seeks to compare the LbD model with its dimensions with the five principles of Mode 2 knowledge. The Mode 2 approach displays links with studies on expertise, construction of knowledge and competence as well as tacit knowledge. In my view, Mode 2 knowledge production is particularly applicable to Innovation – which has just recently been added to the law of UASs as one of the statutory tasks.

The theoretical basis and conceptual framework for Learning by Developing pedagogy is deeply rooted in pragmatism which is an action-oriented philosophy of science (Dewey 1929; 1963; James 1907; Peirce 1992). Taatila and Raij (2012) have thoroughly introduced and analysed the LbD-model as well as compared it to pragmatism. In pragmatism, the world is a set of practical actions that are born from thinking. In line with Mode 2 knowledge creation, there is no dualism between theory and practice; rather, they are two sides of the same coin (Peters, 2007, 356). In the Learning by Developing model, theory and practice are intertwined and should not be separated in the students' learning process. According



to Taatila & Raij (2012), pragmatic learning is vocationally directed and, therefore, every learning situation should lead toward increased practical competence.

According to Raij (2013, 11-12), the LbD action model comprises the following complementary stages:

1. identifying the phenomenon of the R&D project with its concepts and relationships between concepts;
2. reflecting on the meanings of previous research findings and solutions;
3. predictive recognition and description of processes related to the project, which makes possible both an abductive hypothesis (an initial presumption based on prior
4. clarifications, facts and discoveries) and a personal curriculum;
5. acquiring tools that are existing theories and models, subject-related concepts, and instruments for doing;
6. acting together, which encompasses the creation of new habits of action and problem-solving skills;
7. continuous evaluation of the project and personal learning process (the consequences of activities);
8. sharing experiences and creating new meanings;
9. recognising and evaluating achieved competence;
10. assessing the impact of the project; and
11. sharing, disseminating and productising the outcomes.

In her recent article, Raij (2013, 13) argues that LbD shares similarities with certain constructionism-based learning theories and the theory of activity. For example, Bereiter (2002) sees learning as a process that transforms an individual's internal knowledge structures into collective knowledge structures, which create new ideas and thoughts as well as deepen a community's competence. Hakkarainen, Lonka and Lipponen (2004) have developed a theory of progressive inquiry, which is based on problem solving by combining elements of theory of knowledge building (Bereiter and Scardamalia 1993; Scardamalia and Bereiter 2003) and theory of expansive learning (Engeström 2001), which is based on the theory of activity. Practical experiences enhance conceptualisation, as they are tested in practice in order to create 'conceptual artefacts' (Hakkarainen et al., 2004, 299-302; Hakkarainen 2009.) According to Raij (2013), the LbD action model focuses on acting together and discovering new ways of thinking and doing in order to be able to manage changing situations. Learning is regarded more as a tool that facilitates the achievement of competences. (Raij 2013.)

Learning processes in higher education can pedagogically be linked to the principles of knowledge building as it is formulated below:

*"Knowledge building provides an alternative that more directly addresses the need to educate people for a world in which knowledge creation and innovation are pervasive. Knowledge building may be defined as the production and continual improvement of ideas of value to a community, through means that increase the likelihood that what the community accomplishes will be greater than the sum of individual contributions and part of broader cultural efforts. Knowledge building, thus, goes on throughout a knowledge society and is not limited to education. As applied to education, however, the approach means engaging learners in the full process of knowledge creation from an early age. ... The key distinction is between learning—the process through which the rapidly growing cultural capital of a society is distributed—and knowledge building—the deliberate effort to increase the cultural capital of society."* (Scardamalia and Bereiter 2003, 2-3.)

The Learning by Developing action model has a great impact on the way teaching is delivered in students' knowledge and competence creation processes. In her fairly recent article, Kallioinen (2011) has discussed transformative teaching in the Learning by Developing action model, which means building an entirely new teaching culture. In the LbD teaching community, the crucial factors are not only subject-specific competence but also a research-oriented, developmental approach, interaction skills, the ability to encounter colleagues, students and partners dialogically, and having the pedagogical competence. The qualities of an expert promote the implementation of good, high-quality teaching and fostering the students' motivation and participation. From the students point of view, the emphasis is on guidance, learning process, mutual reflection, professional and human growth, and a research-oriented, developmental approach to work.

These above-mentioned learning theories and principles of LbD can fruitfully be reflected in the ideas of the new production of knowledge in Mode 2, which will be discussed more closely in the following chapter.

## Mode 2 - The Five Principles of New Competence and Knowledge Production

Twenty years ago in 'The New Production of Knowledge', Gibbons et al. (1994) introduced to the international scientific community concepts such as 'Mode 2 knowledge' and 'socially distributed knowledge'. These concepts allow the analysis and examination of the production of new competence and knowledge. This approach has, for twenty years, challenged conventional structures and concepts present in scientific research in questions, such as:

- what is considered to be science, what does scientific mean;

- how are knowledge and competence produced, linked to power structures and ownerships;
- who has the right to produce scientific knowledge and;
- how is the reliability of produced knowledge and competence evaluated.

Similar questions are often posed when we discuss the concept of learning in LbD processes.

By 2008, the notion of 'Mode 2' had been referred to in over 1000 scientific articles, and it seems to have influenced science, technology and innovation policies. However, at the same time, scholars have written numerous critical papers to contest the claims and the use of the Mode 2 concept, both conceptual and empirical papers. (Hessels & van Lente 2008, 741; Swan et al. 2010; Martin 2011; Bresnen & Burrell 2012.)

The Mode 2 approach seeks to describe the way in which the ability of individuals and groups to create new things, transcend traditional boundaries, combine diverse sources of information and competence, and innovate will become increasingly important in the future (Nowotny, Scott and Gibbons 2001; Hessels & van Lente 2008). The essence of 'knowing' has changed from the act of remembering and repeating to an ability to find and utilise information. To this, Jorgensen (2005, 51) strongly integrates a collaborative element, whereby utilising information, knowledge and competence together with others produces success, which at the same time creates social capital.

According to Gibbons et al. (1994), the prerequisites for Mode 2 knowledge production are:

- new technologies, rapid communication, virtual spaces for interaction and communication
- the crucial importance of communication and communication density, where communication expansion leads to a greater diversity of knowledge
- the possibility to utilise previous investments for knowledge infrastructure
- the expansion of higher education
- increased levels of communication and broader technology applications
- proliferation of sites with knowledge competences, whereby this knowledge surplus supports the emergence of Mode 2.

These prerequisites clearly emphasise the recent development and importance of information flow and management and the active utilisation of virtual possibilities, which form a clear distinction to knowledge generated by academic, theoretical research. However, Mode 1 and Mode 2 knowledge coexist, and Mode 2 knowledge needs Mode 2 knowledge and

develops from Mode 1 knowledge. Mode 2 knowledge production requires a theoretical basis, constructed in multidisciplinary interaction. Mode 2 knowledge production does not constitute experimental activity; it is a question of utilising research-based knowledge within a new type of collaborative competence production process. The theoretical basis and connection is emphasised in LbD processes as well in order to provide new competence and knowledge which is rooted in research.

Gibbons et al. (1994) discuss the density of interaction. This leads us to John Dewey, who pointed out that we should understand communication "*as the establishment of cooperation in an activity in which there are partners, and in which the activity of each is modified and regulated by partnerships*" (Dewey 1925/1981, 131). Communication constitutes the co-creation of something. Vanderstraeten & Biesta (2006, 165-166) have studied the added value of pragmatism to human communication, which is not a question of information but rather of meaning. Each person must first construct a specific meaning individually. A shared understanding in interaction becomes shared property between participants, which exists in social practices and not in the thoughts of individuals (cf. Biesta 2004). These perspectives are clearly in line with the Mode 2 concept of 'socially distributed knowledge'.

Gibbons et al. (1994) characterise knowledge as follows:

**Mode 1 knowledge** refers to a conventional knowledge production method in line with the so-called old paradigm; knowledge is produced and created in a researcher-oriented way within a specific discipline. This type of knowledge is mostly theoretical or experimental, hierarchical and static. The research problems are set and solved within a science community.

**Mode 2 knowledge** is produced (usually involves participation by users) in the context of application. Knowledge is created in a transdisciplinary and multidisciplinary framework. Knowledge can be characterised as heterogeneous and heterarchical (organisational heterarchy), and is produced in social processes. Social accountability/responsibility, reflexivity and new forms of quality control are related to Mode 2 knowledge production. The five principles will be examined in more depth below.

## Context of Application

Mode 2 knowledge production emphasises the importance of broad reflection, scrutiny and continuous negotiation - i.e. the importance of communication. Knowledge production demands active participation by various actors and the social sharing of knowledge. Mode 2 does not carry the traditional meaning of 'applying knowledge to practice', where theory is tested and developed further by means of practical

application. Conceptually, application is closely linked with discovery, which brings about new perceptions, knowledge, innovation and competence. A clear-cut distinction between science and technology becomes increasingly difficult. This is evident in the creation of innovation; the competitiveness of the innovation system is challenged by models for both cooperation and competition between producers of new knowledge and competence. (Gibbons et al. 1994.) Mode 2 knowledge breaks the boundaries of conventional applied research and leads towards new competence and innovation, which cannot be envisaged at the start of the process.

MacLean, MacIntosh and Grant (2002, 191) stress that the context of application, particularly in Mode 2 knowledge production, means that **the decisive factor is to produce useful knowledge and competence in a pragmatic way**, reflected in research objectives, questions and practices that are discussed in mutual negotiation. In Mode 2, there is no need for knowledge transfer, whereas in Mode 1, the knowledge production is separated from practical application, both in space and time (Hessels and van Lente 2008, 741). Gray, Iles and Watson (2010) have also produced an interesting article in the HRD field concerning the academic-practitioner divide and reflected the findings in using the Mode 2 knowledge production process.

Mode 2 knowledge has brought specific added value in developing applications towards new innovation and in producing innovation. The study on knowledge creation by Nonaka and Takeuchi (1995) contains the same basic elements as Mode 2 knowledge: abundance/density of interaction, knowledge processing and production also among organisations and companies, and shared ownership of knowledge.

The dialogue between scientific debates is very interesting and fruitful, as the concept of tacit knowledge also plays a central role in Mode 2 knowledge production (Gibbons et al. 1994, 24-25, 167-168). Organisations produce codified knowledge through writing and systematic storage, making it easy to use, teach and transfer. Tacit knowledge cannot be internalised by means of reading texts, as it resides in the experiences, thoughts, attitudes and conceptions of individuals - it is latently rooted. Today, experts actively participate in networks. These networks contain large amounts of tacit knowledge available to everyone. Examining the viability of organisations, tacit knowledge is known to add a considerable competitive edge. With a structure that allows tacit knowledge to become visible and available to others, Mode

2 knowledge production carried out in interactive networks can provide a great deal of added value. The role of tacit knowledge in Mode 2 knowledge production promotes cultural convergence between companies and scientific communities. LbD processes allow students to meet experts in the working world and observe real life situations and discourse - learning constantly from the richness and foundation of tacit knowledge, which becomes explicit in action.

Learning by Developing is not designed to take place inside the higher education campus but instead in real life: among all stakeholders and partners in the region and networks. The learning process is taken where the places of applications are situated. In Learning by Developing, the context of application is described according to Taatila & Raij (2012, 833) as follows:

*"Pragmatism favours action-oriented solutions where students create their own reality...pragmatic universities provide the students with tools to accomplish real tasks in constantly evolving situations, and to use every situation as a learning experience... The mission of UASs is very praxis-oriented. The key mission is to develop students based on the expectations of working life, as well as co-operation with local communities. Thus it is difficult to see how this could be best served by trying to reveal global scientific facts. The needs and situations of regions differ and evolve constantly as people and organizations change, and the important skills are application and implementation. This requires skill in interpretation of situations and competence to operate successfully within them. Thus the pedagogic philosophy selected in UASs should fall within the interpretative paradigm."* (Taatila & Raij 2012, 833.)

LbD processes in real life situations (see e.g. Taatila's 2007 'Learning Business by Doing Real Business') also open up a path to abductive reasoning as a sort of a methodological process, where you place new questions and use abductive reasoning for inventing new hypotheses. In Peirce's (1992) thinking, there are also elements of 'guessing instinct' in connection with finding/inventing, and abduction can be seen as a way to produce new ideas (Paavola 2006, 33-34.) Other elements in abduction, according to Peirce, are: guess, insight, gut, observation, feeling, sensation, concept, identifying models, interrogation etc. In abduction, these elements are normally mixed up. (Paavola 2006, 56-57.) Abduction should be taken concretely in the centre of longstanding social, material and cultural environmental processes and not to be left solely to a conceptual level (Paavola 2006, 74).

## Transdisciplinarity

Transdisciplinarity plays a key role in Mode 2 knowledge production. It is defined by Gibbons et al. (1994) as follows:

*"Knowledge which emerges from a particular context of application with its own distinct theoretical structures, research methods and modes of practice but which may not be located on the prevailing disciplinary map"* (p.168)

*"In the process of transdisciplinary knowledge...(integration) is not provided by disciplinary structures... but is envisaged and provided from the outset in the context of usage, or application in the broad sense specified earlier"* (p. 27).

Transdisciplinarity is primarily a question of solving a particular problem rather than the establishment of a new discipline. According to Scott (2005), transdisciplinary knowledge does not necessarily stem from present-day disciplines, and it is produced in many forms and in the most diverse places.

According to MacLean et al. (2002, 191), in transdisciplinary problem-solving, the skills of the participants are integrated within the framework of the activity, where interwoven empirical elements and a theoretical consensus arise and develop throughout the process as practical solutions and theory construction; these cannot be distinctly categorised into certain disciplines. The results of the process are reflected and transferred to the subsequent activities of those involved in the project; this creates unpredictable dynamics, which are difficult to steer. This can be described as 'problem solving capability on the move'.

Gibbons et al. (1994) summarise the four distinct features of transdisciplinarity:

- evolving framework for problem-solving, which steers endeavours for problem-solving, i.e. issues are not finalised beforehand
- a contribution to knowledge: the development of inherent theoretical structures, research methods and practices, which may not be applicable to a traditional scientific field
- knowledge results are transferred and diffused as early as during their production, which thus demands participation. The results are circulated and developed faster in new problem-solving situations than through professional journals or conferences.
- transdisciplinarity consists of dynamic activity in which interaction networks are maintained by both official and unofficial means. The dynamic and changeable character of research makes it difficult to forecast new contexts of application.

According to Hessels and van Lente (2008, 741), transdisciplinarity refers to the mobilisation of a range of theoretical perspectives and practical methodologies in order to solve problems. In Mode 2, interaction between disciplines is much more dynamic so that transdisciplinarity goes even beyond interdisciplinarity. Once a theoretical consensus is reached, it can no longer be easily reduced to disciplinary parts.

Working life is not organised by disciplines. Transdisciplinarity is one of the main objectives of Learning by Developing, and it has been further developed and operationalised in Laurea's multidisciplinary campuses, where it is natural to work together with teachers and experts from other disciplines. This has also required pedagogical leadership so that the teaching staff has not been allowed to work on a solo disciplinary basis or build their own closed communities inside the campus. Transdisciplinarity comes naturally from LbD's starting point, which is a genuine, working life-related research and development project (Raij 2007).

## Heterogeneity and Organisational Diversity

The interactive and participatory process clearly distinguishes Mode 2 from Mode 1 knowledge production. As a result of both human and financial resources being transferred and implemented in a completely new way, Mode 2 has become an influential operator in the context of the dynamic global market and social challenges. This enables knowledge production and joint development within strict time frames - involving participants even on a global scale. (Gibbons et al. 1994.) In Mode 2 knowledge production, organisational heterarchy refers to knowledge production in diverse locations and different knowledge-intensive organisations, such as 'think tanks'. (Scott 2005, 53.)

Heterogeneity and organisational diversity are described by Gibbons et al. (1994) by three main features:

- increase of knowledge-producing sites
- linkage of sites through communication networks
- recombination and reconfiguration of the sites behind the above-mentioned sites.

Networks are important for heterogeneity and organisational diversity, which constantly develop institutions and communities that evolve. Diverse networks are also seen to create new perceptions. Gibbons et al. (1994) present the concept 'hybrid forum' referring to a meeting point for different operators, which can also function as a new market place for knowledge and expertise.

Heterogeneity and organisational diversity in new competence and knowledge production are closely linked with the knowledge creation aspect of theories on expertise. In research discourse, expertise can be seen from different perspectives. According to Hakkarainen, Palonen and Paavola (2002), research on expertise can be classified from three viewpoints:

- expertise as information gathering (cognitive view);
- expertise as participation in an operational culture (participatory view); or
- expertise as knowledge creation (creative view).

These perspectives are complementary, but the creative view is a new kind of approach that combines the best parts of the cognitive and participatory views and adds to them the idea that expertise contains a strong creative element that allows for competent, situation-appropriate actions in a renewable context. Experts work flexibly and intuitively and do not need to stop and think about what theory should be applied to each task. (Tynjälä 2008; Helle, Tynjälä & Vesterinen 2006.)

In theories that emphasize the knowledge creation aspect of expertise, Bereiter & Scardamalia (1993) combine the individual and social points of view, whereas Nonaka & Takeuchi (1995) focus more on the social approach. According to Hakkarainen et al. (2002), a shared operating culture could be called an innovative information society. (Tynjälä 2008; Kallioinen 2007.) These theoretical approaches have a distinct connection with Mode 2 knowledge production, which boosts a deeper understanding of mutual knowledge production. This article does not, however, further expand on these notions, but as both approaches focus on competence and knowledge production, it is important to define Mode 2 knowledge production within the context of studies on expertise. Different perspectives enrich and provide deeper meanings.

Taatila and Raij (2012) have discussed the action-based approach of knowledge which, especially in larger RDI projects, can well be applied to the principle of heterogeneity and organisational diversity, as along the learning process the roles of the actors may change and new modes or platforms of communication is created and used.

## Social Accountability and Reflexivity

Mode 2 knowledge production is deeply rooted in the daily operations of communities, making social impact and responsibility naturally important. Explicit value reflection by individuals and groups involved in Mode 2 knowledge production is another related aspect.

According to Scott (2005, 53), reflexivity means that knowledge production is not established on objective research, but is more a question of dialogue between researcher and participant/target. Reflexivity mainly refers to knowledge production in communal discussion, where participants are required to observe the research process also from each other's viewpoint. This leads to an increasingly reflexive form of study, and promotes a deeper understanding of the research process. Broader levels of communication and transparency, heightened awareness and sensitivity to the starting points of participants and their opportunities to influence, the discussion of power structures and increased public interest in the purpose of research have led to more diverse interests and participation. (MacLean et al. 2002, 191-192.)

Social accountability and reflexivity are embedded in LbD processes as they always involve several rounds of interaction and development together with partners. Gibbons et al. (1994, 3-6) argue that the knowledge produced in applied studies is based on wider shared deliberation and analysis. Knowledge and competence are produced through continuous dialogue, and cannot be produced without involving the interests of the participants in the work. This dialogical process has the capacity to incorporate multiple views enabling researchers to become more aware of the societal consequences of their work (Hessels and van Lente 2008, 742). From the point of view of teaching at Laurea, this emphasises the need for networking competence for teachers, as well as a new concept of knowledge, in which competence and knowledge are co-created in a socially accountable way. This points out the significance of the authenticity and partnership that lie at the heart of LbD, and raises the importance of transformative teaching in this kind of participatory, processual work.

## Quality Control

Argumentation related to Mode 2 knowledge has been developed further in the publication by Nowotny, Scott & Gibbons (2001), which also emphasises themes on quality control in new competence and knowledge production, and also in an article by Nowotny, Scott & Gibbons (2003). According to Nowotny et al. (2001), the conventional view on reliable knowledge as the final goal or absolute value of scientific research forms an insufficient definition in an increasingly open information environment. As knowledge is no longer solely targeted at the scientific community, but at diverse stakeholders, including knowledge producers, distributors, intermediaries and users, it must be socially sustainable. According to Scott (2005, 53), it is not even possible to define traditional peer evaluation groups for evaluating the quality of Mode 2 knowledge; hence, new types of quality criteria



and practices have been developed in the context of new knowledge. The quality of new competence and knowledge is also evaluated when used in its own context of application.

According to Gibbons et al. (1994), Mode 1 and Mode 2 quality control can be examined as follows:

- Definition of success, Mode 1 – excellence of academic research (evaluation by disciplinary peers as key element)
- Definition of success, Mode 2 – efficiency or usefulness (wide range of quality control procedures as key element). Efficiency or usefulness must be evaluated according to what added value the research has generated in the comprehensive solution of a transdisciplinary problem.

Mode 2 knowledge production occurs in the context of application - in the meeting point of daily activities; hence, the evaluation of the reliability/usefulness of the results also takes place in a practical context. This allows the development and application of different types of evaluation methods, which on the other hand, may hinder the comparability of results and the evaluation of long-term impact.

According to Gibbons et al. (1994), the following questions assist in evaluating the quality and especially the impact of Mode 2 knowledge and research results:

- If found, can the solution be competitive on the market?
- Is it cost efficient?
- Is it socially acceptable?

Clear, simple, new types of questions enable the evaluation of impact and results in each situation to be steered closer to the actor and user interface. At the same time, quality control gains new dimensions compared to conventional research evaluation, although traditional research criteria cannot be abandoned completely. A systematic and methodological approach is a key element in Mode 2 knowledge production.

According to Hessels and van Lente (2008, 742), the new forms and criteria of quality control don't mean that Mode 2 research is generally of a lower standard, although they claim for further empirical research and better coherence for Mode 2 in their article.

As LbD processes are integrated in RDI, it normally means that the quality control is systematically operated as a normal part of the projects – mid-term evaluations and final evaluations, which are well documented. The results of the process are also discussed and analysed along the process so

that the process can be re-tuned if necessary in order to receive the best possible results.

In general, quality enhancement is becoming increasingly more important. Quality enhancement is also strongly linked to the view of (Milthers 2011, 90) that in the current ongoing reform, universities need to operate at the forefront of research, education and innovation. There should, therefore, be strong institutional frameworks if they wish to belong to the top group of universities, which includes knowledge production processes. Only constant renewal will guarantee a position as a key institutional player. The stakeholders are supposed to continue developing structures and study fields, while at the same time maintaining trust in the long-term changes made earlier. (Kallioinen 2013.)

Concerning the production of new knowledge, Laurea's pedagogical framework, with strong RDI integration and student-centredness, have been brought under evaluation as Laurea has applied for nominations as a Center of Excellence by FINHEEC. In the nomination as a Centre of Excellence in education for 2010-2012, Laurea's theme for the application was 'Student-centred R&D integrated into learning'. In their feedback, the FINHEEC evaluation group (Auvinen et al. 2010, 146-148) made the following statements:

**"Outcomes:** *Laurea's evidence is mainly qualitative. The generally high level of results indicates that student-centric R&D is a good choice for pedagogy at a university of applied sciences. Among universities of applied sciences in Finland, Laurea produces the highest number of ECTS credits from R&D. In addition, the students' participation in publication, project preparation and even project management activities proves that they are central actors in Laurea's R&D operations. As the pedagogical model becomes established evenly throughout Laurea, the students' annual R&D involvement level may rise further."*

**"Summary of evaluation results:** *One of the particular strengths of R&D activities at Laurea is the role of students as central actors taking responsibility. Laurea has the will to continuously develop and improve its pedagogical model. Other strengths are Laurea's open interaction with its operating environment, its agility in responding to the needs of the environment, and the apparent functionality of its management model."*

Some of the challenges that were discovered were implementing the pedagogical model more comprehensively throughout the institution and taking care of the competence and coping ability of teachers in the turmoil of change (Auvinen et al. 2010, 146-148). This feedback, with its statements, is linked to the principle of quality control in production of new knowledge and competences.

Laurea's international evaluation processes (e.g. Vyakarnam et al. 2008), feedback and reports have had their own specific role, especially in the development of the pedagogical model of Learning by Developing (LbD). They have brought international insight about higher education pedagogy close to actors and opened perspectives to common European higher education pedagogy. (Kallioinen 2013.) The main objective in all Europe is to boost economy and lift up the competence level of the nations as well as to produce new knowledge and new competence.

## Reflecting Mode 2 and the LbD action model

This article is an effort to expand and further elaborate the ideas of LbD and its pragmatic roots in the area of Mode 2 knowledge production. In the table below, there is a comparison between Mode 2 principles and the dimensions and perspectives of the LbD action model. My argument is that these two perspectives, Mode 2 and LbD in knowledge and competence production, are intertwined and strongly support each other in various development processes aiming to produce knowledge and competences.

Table 1. Mode 2 principles compared to LbD action model (Kallioinen 2014)

Mode 2 Principles	LbD connection to Mode 2 Knowledge
Connection to Context of Application	<ul style="list-style-type: none"> <li>• authenticity and experiential nature as core dimensions in LbD.</li> <li>• pragmatism, abductive reasoning</li> <li>• action orientation, problem solving, creativity</li> <li>• practical experimentation</li> <li>• real- life tasks, projects, phenomena</li> </ul>
Transdisciplinarity	<ul style="list-style-type: none"> <li>• research orientation as LbD dimension</li> <li>• multi- and transdisciplinary RDI projects across all educational fields and in cooperation with academic universities as well</li> </ul>
Heterogeneity and Organisational Diversity	<ul style="list-style-type: none"> <li>• partnership as LbD dimension</li> <li>• promotion of multidisciplinary team work</li> <li>• contacts with decision makers on various levels (regional, national, ministry, committee and institutional level)</li> <li>• participatory teams, steering groups in projects</li> <li>• involving teachers, students, partners, changing roles in the process</li> <li>• objective to reduce hierarchy and involve participants</li> </ul>
Social Accountability and Reflexivity	<ul style="list-style-type: none"> <li>• reflexivity is promoted by involving different stakeholders in LbD project participation, reporting, and team- and steering- group activities</li> <li>• social responsibility as one of the core values in LbD</li> </ul>
Quality Control, Added Value from R&D Activities	<ul style="list-style-type: none"> <li>• well-designed sharing of project results produce knowledge and competence during the process, and diffusion of the results to different operators.</li> <li>• the usefulness and reliability of the results are evaluated in the context of use.</li> <li>• LbD projects enable process and service innovation.</li> <li>• overall systematic quality control and quality enhancement also nationally and internationally</li> </ul>

In the figure below (Fig 1), the outcome of this reflective article is displayed in an illustration where LbD dimensions and Mode 2 perspectives are linked together so that the comparison can be more easily discussed and evaluated. From the point of view of LbD and Mode 2, the dimensions and perspectives in knowledge production processes, development

projects and learning situations are supporting each other and clarifying the main objectives of these kinds of activities. Somehow, they seem to build a kind of a value network and thus give a broader meaning in the concept of 'new production of knowledge'.

# Mode 2 knowledge in Learning by Developing

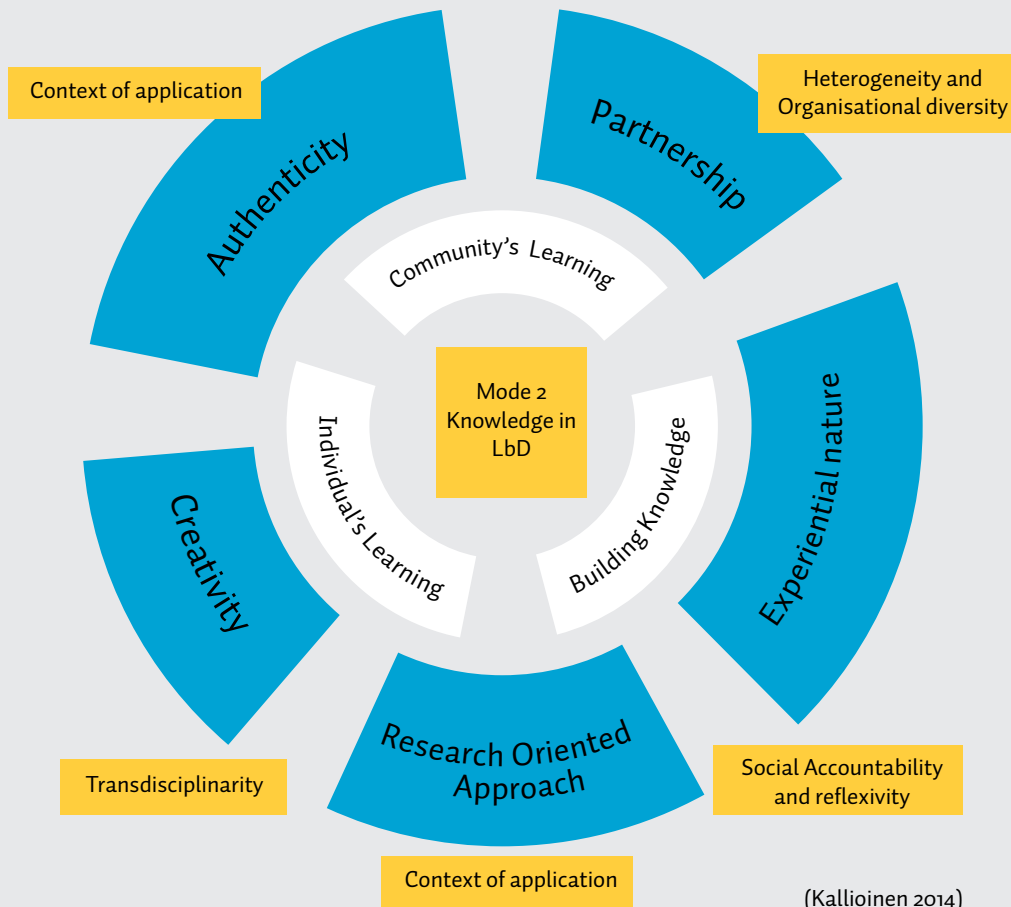


Figure 1. Mode 2 knowledge production in Learning by Developing. (Kallioinen 2014.)

In LbD projects, there is a process-like nature of the research activities, time-span in the development of the process, the significance of a transdisciplinary competence community and diverse, as well as active, distribution of the results during the different stages of the project and at the end. In future, demanding more active user participation, an emphasis on user orientation and new combinations of competence areas are likely to become increasingly important in project processes of this type.

## Conclusion

The Mode 2 approach should be more profoundly and systematically designed and adopted for research, development

and innovation activities in the context of current knowledge and competence production processes in the LbD action model. The mode 2 approach steers RDI process planning towards increasingly participatory, dynamic and creative forums of new competence production and, hence, it will enhance learning. Transdisciplinarity as participation that transcends scientific borders should be taken into consideration when seeking to produce new innovation, services, work methods and products. The LbD projects often demonstrate a great deal of multidisciplinary, but this in itself does not constitute the type of transdisciplinarity presented by Gibbons et al. (1994). Transdisciplinarity involves moving from field-specific competence entities to shared



competence production, breaking the barriers between disciplines in new, creative and unconventional ways.

Mode 2 knowledge is produced in knowledge-creating communities, such as the teaching community in universities of applied sciences and e.g. LbD teacher teams with partners from the working life. Teacher teams are characterised by a supportive and close-knit working culture but openness to dialogue. Himanen (2007) highlights the importance of an enriching community and its significance for creative activity. Partnership based on respect and fairness can kindle trust, which, according to Himanen (2004; 2007), is the prerequisite for communities that work creatively and passionately in order to achieve a shared goal. An enriching community gives rise to innovation and creativity, which can only arise in an atmosphere of freedom. Innovators should have the freedom to work creatively towards the vision, but, on the other hand, this freedom must be earned through achievement. (Himanen 2007.) Social and cultural realities have a great impact on the communal creation of knowledge, and cooperation and interaction skills are, therefore, highly important in the process. It can even be claimed that the most intelligent individuals cannot by themselves even come close to the results achieved by a network-based community that works together, and which establishes a common interest and objective and commits to these wholeheartedly.

Universities of applied sciences have excellent possibilities to develop R&D activities in a way that brings Mode 2 knowledge and new competence production increasingly to the fore. The structures of research activities already exist, as does the need for workplace renewal. Strengths include a high standard of competence, close employer partnerships and flexibility of research activities. Networking is important for universities of applied sciences, which in itself promotes official and unofficial interaction channels that characterise Mode 2 knowledge. A potential challenge of Mode 2 knowledge production may involve its transdisciplinary approach; solutions are sought in unconventional

ways, working in a community with operators that represent completely different starting points. The evolving framework for problem solving and the related unpredictable dynamics require a readiness to change and, as far as the research process is concerned, an ability to operate and make decisions according to the situation. Further conflict may be caused by the creation of new R&D methods and practices that bring about new things, which may not have a counterpart in the field of conventional science. Similarly, fail-proof criteria do not exist for evaluating the impact and reliability of Mode 2 knowledge. As a result, particular responsibility and ethics become important in creating functional criteria and practices for evaluating Mode 2 knowledge as well as in applying current evaluation criteria for R&D project processes that produce Mode 2 knowledge.

More profound awareness of Mode 2 knowledge needs to be established among staff operating in LbD processes. Discussions targeted at especially developing the evaluation of impact and reliability should be launched. Such discussion would allow the sharing of best practices and engagement in justified argumentation on the usefulness and targets of new evaluation methods and criteria.

From a broader perspective, joint development of the European Higher Education Area challenges higher education institutions to take on a key role as actors and pioneers of the innovation system. Higher education institutions are supported in the task by multidisciplinary and transdisciplinary cooperation between the business community and universities, activation of competence and social dialogue. Research and development activities based on Mode 2 knowledge production create excellent prerequisites for effective innovation, which at best generates new competence and knowledge, products, services and working methods, renewed work culture as well as processes and social innovation. Thus, applied research conducted at universities of applied sciences gains a new, wider meaning, which is more apt at describing the type of RDI in which they engage. ■

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## LEADERSHIP IN LEARNING BY DEVELOPING

### Abstract

In this article, I try to ascertain whether or not common theories of higher education management and leadership are valid concerning the pedagogical activities in LbD. The article is a meta-analysis of empirical researches and participating observation. The main findings are that the leadership of LbD in Laurea has been strong in strategic matters, but the communicative element has been too weak, especially in the former years of the LbD's implementation. The leadership has had, in the beginning, more features of transactional leadership, but has, during the 2000's, developed more towards transformational leadership, even to adhocracy.

**Key words:** LbD, transactional leadership, transformative leadership, changing teachership

### Introduction

Learning by Developing (later LbD) is a pedagogical model, which has been developed in Laurea University of Applied Sciences (later UAS) in co-operation between practical educators and research. Pirinen (2013b, 53) counts the starting point of LbD from 2003. LbD connects to the wider tradition of the reformation of higher education. The LbD shares similarities with certain constructionism-based learning theories and the theory of activity. In international review, LbD was compared with Problem Based Learning (later PBL), which is an older pedagogical innovation in the field of higher education. Evaluators found major overlaps, but also major differences between LbD and PBL. The major difference was that PBL focuses directly on the curriculum, whereas LbD has a more open and flexible approach toward the curriculum level. Authenticity is the first value of LbD. In PBL there is no requirement of working with authentic problems. Research and development orientation is more explicit in the LbD principles than in PBL. (Raij 2013, 13; Vyakarman, S. and others 2008, 32-33.)

Laurea University of Applied Sciences has selected a pragmatic philosophy of education as the basis of its pedagogic

strategy (Raij 2013, 7). The pragmatic philosophy of education has its roots in the thinking of John Dewey. Dewey sees education as a process of living and not preparation for future living. The school must represent present life. The teacher is not in the school to impose certain ideas, but, instead is there as a member of the community. Education must be conceived as a continuing reconstruction of experience. (Dewey 1984, 442-450.)

Pihlström (2004, 52) has proposed that pragmatic-naturalistic educational philosophy seems to be a good worth basis for UAS's. He sees that if UAS's strive to become institutions where scientific research will dominate, they rebuild the boundary between theory and practice and thus reject the pragmatism of Dewey. Taatila & Raij (2012, 832) speak about interpretive paradigm, which sees the social world as an ever-changing place and is compatible with pragmatism. The rules determined in the first situation are not necessarily true in the next. From this follows, that students should learn the process of discovery and self-sufficiency as much as the facts that are discovered. Taatila and Raij (2012, 839) reported that interpretive paradigm is embedded in Finnish UAS's.

According to Fränti and Pirinen (2005, 54), LbD connects two traditions of professional higher education pedagogy: learning and developing. Learning comes from vocational education. Developing is higher education, which is based on research. Raij (2007, 8) states that Dewey's central concepts of experience, value, action and knowledge can be found in the context of the UAS's. A UAS can be seen as being part of a surrounding region and the world of work – rather than existing for it.

LbD integrates competence-producing learning and an innovative R&D project. The stages are built by the new learning possibilities that are created as the R&D project progresses. The characteristics of the LbD model are authenticity, experiential nature, partnership, research-oriented approach and creativity. Authenticity arises from the genuine work life projects that form the learning environment. Partnership refers to cooperation among students, lectures, working life partners and users. At Laurea higher education is recognised from the perspective of an investigative approach; in a higher education context, developing working life and producing new types of innovation are closely linked to research. (Raij 2013, 12-13.)

As LbD greatly differs from traditional pedagogical approaches in higher education, it also puts new demands on the management and leadership in higher education institutions. The writer has been the rector of Laurea from 1996 – 2011 and has, therefore personal experience from management and leadership concerning the LbD model. In this article, I try to ascertain whether or not theories of higher education management and leadership are valid concerning the pedagogical activities in LbD. There is also some empirical research, which has handled management and leadership in LbD, and I will try to form a synthesis of them. (Antikainen 2005, Pirinen 2013a & b, Vidgren 2009.) There is also the concern about changing teachership, which has been the theme for instance in the theses of Auvinen (2004) and Mäki (2012). I also take the freedom, following the tradition of participating observation in using my own experiences as rector of Laurea.

## Management and leadership in higher education institutions

Beairsto (2007, 360) sees that organisations have moved from a rigid machine bureaucracy<sup>1</sup> to a less tightly -coupled professional bureaucracy with occasional excursions into free flowing adhocracy. According to him, this is a universal phenomenon, but particularly relevant in professional public organisations such as education and health and in private business enterprises engaged in knowledge work.

Machine bureaucracy has a classic pyramidal hierarchical structure with standardised responsibilities, qualifications, communication channels and work rules. It is primarily concerned with control in order to eliminate uncertainty and variation. (Beairsto 2007, 360.)

Professional bureaucracy utilises the routinized behaviour that defines the term bureaucracy. It differs from the machine bureaucracy in that it involves more holistic work at the delivery end and thus has fewer layers of middle management. It also differs from the machine bureaucracy in that its standards of practice largely originate outside the organisation in the self-governing of bodies of the professions involved. The authority of expertise replaces hierarchical authority. In the professional bureaucracy, the work of professionals is too complex to be supervised directly. The professional bureaucracy often suffers from weak coordination. It is a collection of individuals who draw on common resources and support services but otherwise prefer to be left alone and resist external control. In changing environments, professional bureaucracy tends to force new problems into old schemes. (Beairsto 2007, 360-361.)

Adhocracy, as stated by Beairsto, means a structural configuration that fuses experts from different disciplines into smoothly functioning ad hoc project teams. Adhocracy breaks from the classical principles of administration, especially unity of command. The form adapts itself easily to innovation. When problems are not well understood, and there is a need to develop new solutions rather than apply old ones, particularly when this requires multidisciplinary teams rather than single professions, the professional bureaucracy is pushed towards adhocracy. For example, hospitals and universities, which are professional bureaucracies in their routine clinical and teaching work, adopt an adhocratic form in their research functions. (Beairsto 2007, 361-362.)

Beairsto defines leadership as an act of influence involving reciprocal relationships through which members of an organisation or community construct common meanings, build capacity and enhance their ability to achieve shared goals. It is based more on personal credibility than authority. Management describes acts of positional authority that ensure compliance with roles and responsibilities. Leadership and management are parts of administration. Neither leadership nor management alone is sufficient to ensure effective administration. It is important to understand their relative strengths and the relationship between them. (Beairsto 2007, 362.)

Distributed leadership is, according to Beairsto, the ideal. Leadership viewed in this way is the net effect of

<sup>1</sup> Beairsto uses big start letters in terms Machine Bureaucracy, Professional Bureaucracy and Adhocracy.



relationships at all levels throughout the organisation that invite full engagement, recognise contributions, permit influence and enable adaptive learning. An organisation that expects distributed leadership will develop potential that might otherwise remain latent or be only partly expressed. (Beairsto 2007, 368.)

The concept educational leadership is near distributed leadership. It emphasises the empowering and group process of the leadership. In the work community, there is a need to distribute the expertise so that it has a pedagogical dimension for all of the members of the community. (Af Ursin 2012, 98-100.) The former meaning of educational leadership has had a more technical meaning. This kind of interpretation has also been present in former vocational institutes. Mahlamäki-Kultanen (1998, 151) reports in her study, that teachers of vocational institutes expressed very little positive expectations about the rector's pedagogical management. According to af Ursin, educational leadership is mentioned first in 1976, as the opposing part of the administrative work of a rector. It was defined as organising and directing the teaching in the school. (af Ursin 2012, 81-82.) Rauhala (2002, 65-68) used the concept in this meaning regarding universities of applied sciences. He listed the main tasks of educational leadership as follows: the steering of the student flow, the follow-up and supporting of the studies, the making and accepting of the work time schedule, the quality assurance of the learning and the promotion of the strategic aims of a UAS in his or her own unit. He emphasised the importance of a regular follow-up of student feedback. Nikander (2003, 91) states in her study concerning leadership in UAS's, that the pedagogical strategy work of UAS's emphasised the content of educational leadership. Laurea was one of the first UAS's which prepared a pedagogical strategy in 2002, which was based on the first thoughts of LbD.

According to Nikander (2003, 271-277, 323), leadership in UAS's manifested in five dimensions: positivity of the leader's self-knowledge, exemplary nature of the leader's behaviour, ability of the leader to work with others, leadership as a collective profession and threatening of affective factors. Nikander's data was collected from Häme UAS, and respondents were either programme leaders (42 %) or foremen of support activities, not including the top management.

Kohtamäki (2013, 342) evaluates that Finnish higher education institutions have recently started to develop and strengthen their management systems, which reflects a trend connected to managerialism. The context of management in Finnish UAS's is very demanding because of numerous stakeholder groups and various national, regional and local interests. Process management, strategic management

and performance management are examples of the dominant management environments in the UAS's.

Kohtamäki (2013, 342-343) has used in a study concerning managing teaching and R&D in Finnish UAS's the framework of two leadership styles. Transactional leadership is an exchange-based system in which the transaction deals with the requirements and rewards available if the requirements set are achieved. In the case of non-compliance with the requirements a punitive system may operate. Transformational leadership is concerned with charisma, inspirational motivation, intellectual stimulation and individualised consideration. In her paper, Kohtamäki assigns the label of transformational style, when dominant management and leadership orientation exhibits features of interactive and regular communication between leaders and employees (dialogic), openness and the involvement of individuals from all staff and student groups (participative) or paying attention to their work and motivations (supportive). The label of transactional style is applied when the prevailing management and leadership appear to comply with strategies and meet requirements set (dictatorial), practice directing, regulating and control (controlling) or emphasise hierarchy and authority with requirements to follow formal rules and orders (bureaucratic).

Comparing the frameworks of Beairsto and Kohtamäki, we can see the concepts overlap so that the transactional leadership style by Kohtamäki is similar to management concept used by Beairsto. Kohtamäki defines the concepts paying attention to the content of communication. Beairsto starts more from the features of the organisation culture.

The empirical findings of Kohtamäki (2013, 344) show, that in Finnish UAS's there was a clear difference between senior managers and middle managers. Senior managers were rectors, vice-rectors, R&D directors and teaching directors. Middle managers were heads of units and heads of study fields. The nature of institutional management was transformative in 89 % of answers of senior managers as opposed to 55 % of answers of middle managers. Likewise, 11 % of senior managers evaluated the nature of institutional management as transactional, as opposed to 47 % of middle managers.

Wide research MOPE (multidimensional UAS-teacher) completes the picture concerning the management of UAS. The research data covered 1622 teachers and middle managers. The results show that only 38 % of principal lecturers and 35 % of lecturers feel that the management of the UAS supported their work. The equivalent percentage of middle managers was 53 %, which is near the results of Kohtamäki. Management was seen as separate from the work done by teachers. (Vanhanen-Nuutinen et al. 2013 a, 30, 43.)

The answers from the teaching staff reflected criticism and mistrust towards management of UAS's. (Vanhanen-Nuutinen et al 2013 b, 106.)

Kohtamäki (2013, 351-352) also found differences between both the other evaluations of senior and middle managers and between the transactional nature and transformative nature of the institution concerning management preferences. The viewpoints of senior and middle managers diminish when middle managers perceive transformational institutional management and leadership. Senior managers attach greater importance to R&D than middle managers do. When a transactional environment prevails, middle managers make a distinction between teaching and R&D, preferring teaching to R&D in their operative management. In a transformational environment, several methods and ways to integrate teaching and R&D are applied. The central internal groups, staff and students, are more important in the opinions of senior and middle managers when transformational leadership is present.

Vuori (2011, 19, 26) has studied the leadership frames of programme directors in Finnish UAS's. She takes Bolman and Deal's (1994) view of leadership as a starting point in her research. Leadership, in the research of Vuori, is a general term incorporating various forms of managerial and leadership processes, avoiding the general term of management. So she agrees with the concepts used by Kohtamäki and is differing from Beairisto.

Vuori (2011, 67-72) uses the reframing theory of Bolman and Deal (2008) as a framework of her study. Key concepts in reframing theory are the concept of frame and the structural, human resource, political and symbolic frames. In Bolman and Deal's (2008) theory, a frame is a cognitive framework, a lens which helps us to determine what is important and what is not, what to see, what to do, what information to collect and how to define problems. John Dewey and Erving Goffman have been sources of information to Bolman and Deal (2008). Leadership frames are used in a variety of ways: to solve problems, to interpret events, and to ignore matters that can be safely disregarded. Frames influence what leaders see and what they do. According to Bolman and Deal (2008), leaders should be able to reframe, to break the existing frame and see the organisation through a different kind of lens. The major thesis in Bolman and Deal's (2008) theory is that multiframing makes leadership more effective. So multiframing is an essential skill in complex environments.

The focus of the structural frame is on structure and organization; the focus of the human resource frame is on achievement of goals through collective action; the focus of the political frame is on monitoring internal and external

environments and uses influence to mobilize needed resources; the focus of the symbolic frame is on interpretation of history and maintaining its culture and reinforcing its values. (Vuori 2011, 71.)

The structural frame incorporates the ideas of the school of thought of rationalistic systems theories, such as Taylor (1911/2004) and Weber (1964). The human resource theory reflects the ideas of the human resource school of thought such as Mayo (1933/1992). In the political frame, organisations are perceived to be composed of groups vying for power to control the allocation of scarce resources. In the political frame, decisions are made through processes of bargaining, influencing and coalition building. In order to achieve goals in an organization, the leader's own agenda needs to show that the concerns of other stakeholders are taken into account. The symbolic frame of Bolman and Deal's (2008) reframing theory sees organisations as cultural systems of shared meanings. Leadership is seen as the construction and maintenance of systems of shared meanings, paradigms and shared languages and cultures. (Vuori 2011, 71-72.)

An interesting view, which Vuori (2011, 73) refers to, is Birnbaum's (1988) findings that the leader's authority is defined by her/his subordinates. The zones of acceptance tend to be narrower among professionals. According to Birnbaum (1988), this is the reason why faculties at community colleges are more willing to accept bureaucratic control than faculties at elite research universities.

The phenomena referred to by Vuori and Birnbaum may also be relevant, when evaluating why managerialism has received more critics in Finnish universities than in Finnish universities of applied sciences.

Vuori (2011, 73) also refers to the findings of Bergquist and Pawlak (2008), which show that in a managerial culture, instructional design is separated from teaching. Faculty members in administration spend a great deal time on specifying outcomes and the instructional methods to be applied. The key values in managerial culture are efficiency and competence. Leaders need to demonstrate their success through numbers. The strict managerial culture referred to by Vuori is clearly the basis for the newest state financing reforms in Finnish universities and UAS's.

The findings of Vuori (2011, 143-144) based on interviews of programme leaders result in the conclusion that managerialism has found a good home in Finnish UAS's. The first period of UAS's was a constant struggle over operating licences. It was a kind of accreditation process that was used for the first time in the history of Finnish higher education. At the same time, the global trend for tighter higher education

steering mechanisms has intensified. The programme directors need to use the structural frame defined by Bolman and Deal (2008) to work efficiently in Finnish UAS's rational chain of command.

The study of Vuori (2011, 145-148) showed that all programme directors interviewed used both the structural as well as human resource frame in their work. The use of these two frames is the minimum requirement to survive in a middle management position. The programme director's use of the structural frame is what is mostly expected by top management and the use of the human resource frame is what is mostly expected by faculty. The large number of faculty members is the limiting factor for using the human resource frame, because the number of staff may be an even 50. Vuori sees that if spans of control will remain as wide as these, the loose couplings between teaching, administrative and collaborative arenas will continue.

The common practice in Finnish UAS's to elect programme leaders for a fixed period makes, according to Vuori (2011, 147-148), the application of the human resource and the symbolic frames more difficult than if a programme director is on a permanent basis. Vuori argues that the meaning making of a program director's own position through the use of political and symbolic frames could serve as a way of building significance in a programme director's work in a manner similar to the way in which teaching is rewarding to faculty. The role of a middle manager as a strategy implementer, should according to Vuori, turn into a more dialogic role, seeing that the change processes are only possible if someone in the organisation has time and skills to engage in an on-going discussion on the meaning and vision of the UAS organisation.

Vuori (2011, 151) sees that emphasizing multiframing leadership and defining the work of UAS middle management to encompass the use of the political and symbolic frames in addition to structural and human resource frames might be one of the solutions to support UAS's endeavours towards their goals.

There has been a strong tradition to emphasise that the management and leadership theories used in business life are not adaptable in education. Rajakaltio (2012, 105, 117)) sees them as results of neoliberalism trends in educational policy. She sees that managerialism detaches the management of the school from its functional context and substance and does not take into account of the complexity and expertise of the school. Larsen (2013) analyses the European reform of higher education on the basis of Habermas (1986) From this orientation, the university is not exemplary of a life form that shall permeate the society as a whole. Performative

expectations of all knowledge production inhibit the reproduction of valid cultural knowledge. Goals of employability dominate any educational pursuit and the construction of the effective person stands in contrast to the balanced view of the personality as a construction now to be found in the literature on empowerment and citizenship.

The trend described by Larsen is evident in the new university act of Finland, which widened the third task of universities. Universities are expected to interact with the surrounding society and to strengthen the impact of their research findings and artistic activities on society. They should work in cooperation with the surrounding society and promote the social impact of their research findings. (Raij 2013; Finnish Law, Act 558/2009.) Pirinen (2013 a, 57) defines the focused university, which points to a type of organisational character in which growing university classes are needed for sustainable development; universities can become robust as they develop capabilities built around a flexible and novel focus.

Ylijoki and Ursin (2013) researched how changes in higher education policy have influenced academic researchers. The interviewed 42 researchers have largely experienced that academic autonomy has decreased and administrative duties load more and more. Part of those interviewed, however, saw the changes as being positive. These researchers were from the strategic core fields of the university or from the areas which were very appreciated within society.

The theoretical framework behind LbD is different. It is based on an assumption that higher education institutions are part of society, and the demands of society to impact on a society are increasing. Starting from pragmatism, we can say that there is no dualism between thinking and doing; they are two sides of the coin (Raij 2013, 8-9). The ideas of Larsen (2013), based on Habermas (1986), say just the opposite.

Theoretical frameworks used by Rajakaltio and Larsen may be an explanation to the empirical results of Kohtamäki and Vuori concerning the tension between the top and middle management of universities of applied sciences. The top management of higher education institutions has adapted the philosophy of managerialism. The teachers live in a different world and experience the strategic management of the institution to be a threat towards their expertise. The middle managers try to intermediate between the top management and teachers. In the next chapter, we shall see what has happened for the teachership during the history of Finnish UAS's.

According to Hyypiä (2013), the traditional theories of the leadership do not contribute enough to the challenges that globalisation, complexity and increasing uncertainty give



to the leadership. She recommends melting the leadership theories to the practice- based innovation processes. The essential knowledge is not in the management. The role of the management is to offer tools and arenas to promote development.

Below is the summary of the main different management and leadership styles present in higher education.

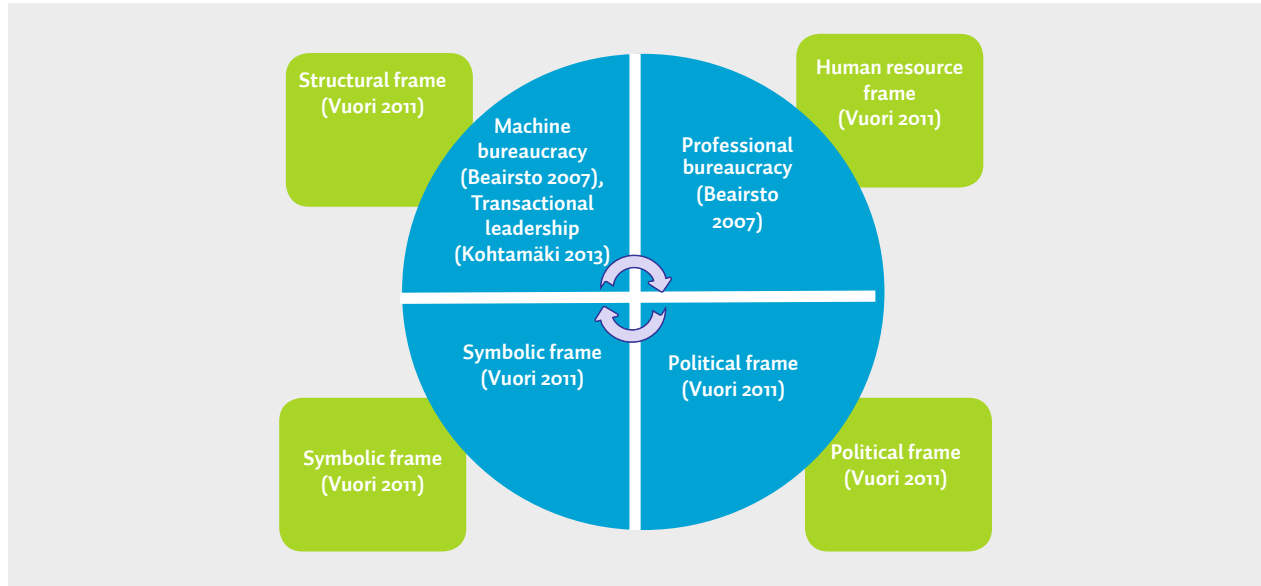


Figure 1. Management and leadership styles and dimensions on higher education according to some researches.

### The changing teachership in Finnish UAS's

Auvinen (2004, 207-214) studied the change of work for teachers during the first years of UAS's compared with former upper professional schools and institutes, which were the forerunners of the UAS's. The research data consisted of interviews of principal lectures, senior lectures, representatives of administration and representatives of business life. The main groups of work for teachers were pedagogical tasks, professional tasks, administrative tasks and economic tasks. Pedagogical tasks had continued to be the biggest part of the work, but their nature had changed. The amount of lectures had diminished and the share of independent work had increased. Learning environments have been widened outside to business life and networks. The focus had been removed to before and after learning situations. The co-operation, both inside the UAS and with business life and other partners, had increased. Administrative work had increased especially in curriculum work and projects. RDI and regional development integrated to learning were only rising on the agenda in 2004, but Auvinen recognised them as the challenges of the coming years.

Mäki (2012, 30, 39) has studied work cultures that are typical of the university of applied sciences from the teacher's perspective. According to him there is a conflict between the

traditional attitude to work and the postmodern attitude to work. The traditional attitude is expressed as loyalty towards the organisation, expectation of a life-long job and expectation of stable unchanged work. The postmodern attitude seeks challenges. Mäki sees that under an organisation culture, there are different work cultures.

The empirical findings of Mäki (2012, 91-92), which were based on concept maps and individual and group interviews of teachers, showed that there was no consensus between the dominant culture of the organisation and the subcultures of the organisation. The number of teachers included in the data was 38. The rites and rituals of the work community, which should be communicative, remain mantra speech on the organisation level without meaning for the teachers. The teacher's experience is that they cannot fulfil the demands put on them by the UAS concerning teaching and RDI.

Mäki (2012, 95, 103) used the framework of Hargreaves (1999) analysing work cultures. His empirical findings showed that in Finnish UAS's there were two different work cultures. One was a combination of a collaborative work culture and a moving mosaic work culture. Mäki saw that this work culture comprises conflicts and interpretations of UAS-work that do not coincide. The other was a combination of an

individual work culture, isolated in-group work culture and collaborative work culture. This work culture Mäki denominated substance and teaching-centred work culture.

The first work culture manifested a positive attitude towards universities of applied sciences. The teachers regretted the old-fashioned attitudes of students towards learning. The students expected that teachers should distribute the knowledge, give lectures and traditional examinations instead of giving self-directive team tasks. The teachers experienced the directing elements of UAS to be unclear. Many teachers belonging to that culture were more committed to RDI-work and did not use traditional classroom teaching as much. Also the most motivated teachers were tired of unexpected work tasks, which were mainly RDI- or business service tasks on top of the normal workload. One group of teachers who belonged to that work culture had adopted a common learning philosophy and they were strongly committed to the organisation. (Mäki 2012, 95-98.)

In the other work culture, the focus was individual work culture. The teachers watched strongly their own areas both in curriculum work and in teaching work. The guarantees of individual work culture were separate subgroups. The work of a teacher was classroom work. Own substance was supported by networking with other experts in the field. Planning, teaching and follow-up were done alone. The role of a teacher was seen as a distributor of knowledge and the expert of substance knowledge. (Mäki 2012, 99-101.)

The representatives of the first work culture were oriented towards learning concepts. They conceptualised their work by many work roles including RDI-work and regional development.

The representatives of the second work culture were oriented towards teaching and conceptualised their work through teaching and classroom work. The qualifications demanded were different. In the first culture, collaborative working skills, command of one's work and professional competence were preferred in the listed order. In the second work culture, the professional competence was the most important and then came communicative skills and the command of one's work. (Mäki 2012, 108.)

In the first work culture by Mäki (2012, 122-123) the teachers were committed to the own organisation and to the professional development of the student. In the second work culture, the teachers were committed to the professional development of the student. Puusa (2007, 160) states in her research, the data of which were business education teachers, that the interviewed evaluated the difference between the own UAS and the others on the basis of own substance subject, not on

the level of whole organisation. Thus they were representatives of the second work culture defined by Mäki.

Kallioinen (2009, 15, 24-26) studied the challenges of teachership in LbD. The data used were a swot analysis of 13 teachers of Laurea. One conclusion was that the teachership in LbD is distributed educational leadership. The distributed leadership must be accepted as an activity where all take part. In the swot analysis, there were slightly conflicting opinions concerning leadership in LbD. On the other side, it was evaluated that leadership is empowering and an enabler, but also top-down management was criticised in some swot analyses.

Laurea University of Applied Sciences adopted, in the beginning of the 2000's, the integration model, where pedagogy, research and development and regional development were seen as an integrated whole. This presupposed the new role of a teacher as a pedagogue, regional developer and researcher and developer. Lectures new roles in LbD can be identified as follows: 1) as preparers and organisers of the LbD implementation process; 2) as implementers and as 3) evaluators; to this can be added mentor and partner for students. (Raij 2013, 10-14; Taatila & Raij 2012, 838.)

The integration between teaching, RDI and regional development is possible only in the work culture, which Mäki defined as combination of a collaborative work culture and a moving mosaic work culture. This profound change was not easy, because it challenged the traditional role of a teacher. According to Raij (2013, 13) a pragmatic learning concept does not have a place in traditional classroom teaching. So there may be an inevitable conflict between the traditional and the new teachership.

## Leadership in Learning by developing

In this chapter, I will handle the leadership of LbD on the basis of rich research, which has been done during the 2000's. Leadership alone has not been the main theme of many researches, but many of the studies include empirical findings, which are interesting. The studies used are Antikainen (2005), Pirinen (2013a and 2013b), Puusa (2007) and Vidgren (2009). There are also some evaluation reports concerning the pedagogical and other activities at Laurea, which have been made by FINHEEC and Auvinen, Mäkelä and Peisa (2006). I was the rector of Laurea from 1996 to 2011, which also gave me the possibility to observe the leadership, even if the subjectivity may mislead my conclusions.

The research by Antikainen (2005) deals with the time, when LbD was in the starting phase. Raij (2013, 10) sees Laurea UAS's pedagogical strategy in 2002 as an important step

towards the holistic model of competence, which was theoretically presented in the thesis of Raji (2000, 126). The pedagogical strategy of Laurea was one of the first among Finnish UAS's.

The framework of Antikainen is Pekka Ruohotie's (1993) model of the elements of growth-oriented atmosphere. Antikainen (2005, 63) uses the concept of transforming leadership, which means leadership that enables organisational development and learning and the psychological and technical empowerment of the staff. Like Kohtamäki Antikainen sees transactional and transformative to be the different leadership styles. The empirical data of Antikainen (2005, 113) consisted of the whole staff of Laurea, of which 208 members (61 %) answered the internet survey representing all staff groups and units from 2001. In 2002, Antikainen interviewed seven teachers, deepening the analysis made by factor analysis.

The findings concerning the growth possibilities of Laurea were fairly good. Concerning the leadership, the best item was incentive leadership, the second best was strategic management and the weakest was rewarding the knowledge of the staff. The incentive leadership was mainly the task of middle managers. The staff was critical concerning the work of the top management in strategic management. This included inter alia acting as a forerunner, interpreting common values, following the development of units and responsibility of the development of the staff. The most important improvement needs were in evaluating the knowledge of the staff and rewarding it. The commitment and the growth motivation of the staff were very high. The workload was also very high. (Antikainen 2005, 140-141.)

The findings of Antikainen were very near the findings made by Kohtamäki and Vuori concerning the wider group of universities of applied sciences. Items of the administration were highest, the items of teachers second highest and the items of the support staff lowest. (Antikainen 2005, 143.) What was also interesting was that the items concerning the strategic management were lowest with the staff of business education (Antikainen 2005, 147).

In Bayes-analysis, the role of the managing group as a demonstrator of the values was the most fundamental in the strategic management. In incentive management the attention to the proposals and hopes of the staff were the most fundamental. (Antikainen 2005, 158-159).

The variables concerning strategic and incentive management were, in the Bayes-analysis, independent of the variables of the teacher/student relations (Antikainen 2005, 169). Puusa's (2007), whose data included business education

teachers, results showed that the images on the identity of the organisation differed between the management and the staff. The teachers felt that the values of the organisation were not seen on the everyday level. The teachers hoped that teaching should rise to the core function of the institution. The results of the curriculum evaluation made by Auvinen et al. (2006, 60) confirm the results reported above. It was recommended that there is much work to achieve the common vision. Also, these results confirm those of Kohtamäki, Vuori and Mäki reported above.

The most important challenge concerning the top management was to develop the communication to the staff about the aims of the UAS. The more understandable and coherent communication would make the division of the labour and the aims of the UAS clearer. It was recommended that the transforming and communicating of the management would promote the professional growth of the staff. (Antikainen 2005, 239.)

Puusa (2007, 148) reports that the managers of Laurea thought that the members of the organisation knew the vision and strategy of Laurea. However, the members of the staff who were interviewed said that the vision and the strategy were very unclear and were on a very abstract level. The staff felt that they did not connect to their everyday work. There was some confrontation between the staff and the management in this. According to Puusa (2007, 154), the vision and the strategy of Laurea did not express the identity of the organisation. The staff saw that the core task of the UAS should be the high-level education. This shows that the main principles of LbD were not initialised in the group of the teachers, which were business education teachers at that time. The interviews happened during the time when LbD had been just introduced, about 2005.

Puusa (2007, 151, 175) reports, that the staff in her data emphasised the education task of UAS and did not accept the three main tasks as being equal. The main obstacles were in resources. However the staff saw that the management of Laurea had succeeded in setting the aims of the organisation. The strong opinion was, however, that the management had not been successful in clarifying the vision to the staff. Puusa sees this to be a collective gulf between the aims set by the management and the everyday work of the staff.

The findings of Puusa can be seen to demonstrate the organisational culture defined by Bearsto as professional bureaucracy, which were not yet developed to adhocracy among the teachers who were included in her study.

Vidgren later studied the management of educational innovation in Laurea. The reason for electing Laurea as the object

of her research had been Laurea's success in the evaluations of the top units of FINHEEC. It was uncommon, that the whole UAS had been elected as a top unit. All other top units of UAS's had been departments, study programmes and units of a UAS. Vidgren was interested in how the innovation was taken in use, developed and managed. The innovation referred was LbD. (Vidgren 2009, 73-75.)

The data of Vidgren consisted of 28 team interviews of top and middle managers, pedagogical experts and teachers. In the second phase Vidgren sent two inquiries to experts in the field and had an expert panel including students, business life representatives and managers of UAS's. (Vidgren 2009, 78-84.)

The findings showed that the attitudes of the business education teachers had become more positive towards the LbD innovation, when they had noted the meaning of the innovation in their teaching work. However, the commitment of business education teachers to LbD changed by the units at Laurea. The attitudes of health care teachers were more positive towards LbD. They made the strategy more concrete, and the strategies were taken into everyday use by teachers. The business education teachers experienced that LbD was more adaptive to health care studies than to business studies. The top management emphasised the integration of LbD to the strategy work of Laurea. The important tool disseminating the innovation was common seminars, where the staff could modify LbD to be more suitable for their own work tasks. Middle managers evaluated that the teachers who were slow adaptors of LbD feared their ability to renew or failing in their tasks. (Vidgren 2009, 102-118.)

Vidgren differentiated the initial, implementation and evaluation phases of the LbD innovation. In the initial phase, the UAS wanted to be a forerunner, and it searched for ideas to develop the professional knowledge of students, where teaching, RD and regional innovation are unified. The values and open organisation culture guided the work. The management was proactive and brave in its strategic thinking and the pedagogical development was appreciated. (Vidgren 2009, 129-131.)

In the implementation phase, the innovation was clarified and the board accepted it in the pedagogical strategy. The top and middle managers were committed to the reform and the charismatic management got the staff commit to the innovation. The management was charismatic. Research made by teachers was utilized in the development of the innovation. The action of the rector and top management was credible, and the middle managers were transmitters between the top management and the teachers. The teachers of health care appreciated the work of middle managers, but

some teachers in the business education felt that the work of middle managers did not sufficiently support the implementation phase. (Vidgren 2009, 130-131.)

In the evaluation phase a systematic feedback discussion was on. The dialogue was both national and international. The management regularly followed the results and achievement of the aims of the reform. The management allowed critical discussion. (Vidgren 2009, 130-131.)

The final model of innovation, built by Vidgren (2009, 151) includes three circles, which form a spiral. The first is the circle of searching, the items of which are sensitivity to weak signals, pedagogical knowledge and its appreciation and a common vision. The second is the circle of developing and implementing. It includes concepts derived from research, middle managers supporting the staff and the commitment of management and staff. The third is the circle of evaluation and improvement. It consists of continuing dialogue and systematic and reliable evaluation. The innovation is cultural change, which is a learning process of the organisation following the values of the organisation. The managers are manifestations of the values and conform the activities, which are compatible with these values.

The innovation model by Vidgren explains the differences concerning the management between Antikainen and Puusa on one side and Vidgren on the other side. According to Vidgren, an innovation is a long-lasting and partly coincidental trip, which does not go straightforward. She sees the LbD-model as the framework of the pedagogical strategy, which guided the activities of teachers. The management had a strong strategic hold and clear vision of the aims of the reform. In the first the role of the management was critical. The middle managers were in the focus of change resistance and needed support from the top management. The mutual meetings of the top management and the middle managers were important to the commitment of the middle managers. (Vidgren 2009, 156-159).

It can be evaluated that in the evaluation phase near 2010 the organisational culture defined by Beiarsto has developed to adhocracy.

The business education teachers met more challenges in LbD. Vidgren sees the reason for this being that the work habits of the business education teachers is based more on working alone and networking with the business life was not so intensive. The other reason was the different education and career path between the business teachers and the health care teachers. The business teachers had an academic background. The health care teachers had vocational education before the academic education, they had more practical

experience in the field, and they were used to cooperating with practical training places. Learning was the essential part of innovation. The findings of Vidgren explain, at least partly, the criticism referred to in Puusa (2007). (Vidgren 2009, 160-163.)

In the studies of Pirinen (2013 a, 19-20, 27), the research question was to gain a deeper understanding and design of the structures, characteristics, factors and actualisations of regional development and R&D in the context of a UAS. One sub-question focused on how the regional development could be understood, designed and actualised in a UAS from the perspective of the governance of externally funded R&D projects. The data were collected between May 2001 and September 2012. So it covers the whole time period from the searching phase to the evaluation and improvement phase of LbD- innovation defined by Vidgren above.

According to Pirinen (2013a, 43), the leadership and management of Laurea was based on a bottom-up, student-centric vision and relationship. It was also based on an orientation, management culture and philosophy in which the management focus was on variations of power, mutual trust and authority relations as well as relationship management. Following Gibbons, Pirinen (2013a, 43-44) sees that there is two management approaches, mode 1 and mode 2. Mode 1 is disciplinary based on a disciplinary setting, where the creativity of an individual is the driving force of development and is operated through disciplinary structures. The disciplinary mode includes control aspects as the consensual figure in the scientific community. The disciplinary mode is the same as the transactional leadership in the concept used by Kohtamäki above.

Mode 2 is an intellectual quality setting for management and leadership, which means that the creativity is collective as a group “co-creativity” phenomenon with the individual’s contribution. In mode 2 the management and steering are exercised as a socially extended process, which accommodates a variety of interests in a process. (Pirinen 2013a, 44.) Mode 2 is similar to adhocracy, defined by Beairsto above. It also resembles the multiframing leadership defined by Vuori, who saw this to be an ideal type of leadership.

Pirinen (2013a, 75) studies the governance of externally funded R&D on the empirical bases of eleven externally funded projects. The new proposal of this study was in the “steering forums”, which describe shared value relations, retentions and management aspects of participants. Pirinen (2013b, 74) states that in Laurea Gibbons’ mode-2 leadership was implemented into Gibbons’ mode-1 institution. The bottom-up and vision-based management was the force of a sustainable driver and also an enabler for the agile scopes

in the realisation processes, so that the ecosystems of different stakeholders can come up with new creative ideas. The management’s statement of direction was freedom within framework. Pirinen (2013b, 88) sees that education within R&D requires a close and trust-based collaboration between staff and management, as well as with students and participants of work communities. Pirinen’s solution, steering forums, is similar to the solution which Hyypiä (2013) has presented: connecting the traditional leadership theories to the practice based innovation processes.

An example of empirical data is the evaluations made by FINHEEC. Laurea was denominated five times as a top unit in these evaluations. The quality assurance system of Laurea was also audited in 2012. Laurea has also been very active in other outside evaluations.

In the first top unit evaluation (Impiö et al. 2003, 33), the strategy process of Laurea was praised and the annual seminars evaluating it was mentioned.

In the second top unit evaluation (Salminen & Kajaste 2005, 82), LbD was the proposal to the top unit. In the evaluative feed-back the panel stated that LbD presents a management and work culture, which is based on common knowledge development and creativity.

In the third evaluation (Käyhkö et al. 2006, 86-88), the panel saw the management starting from the strategy with the strong involvement of the staff. The commitment of the staff to the strategy increased the freedom of the staff. This made rapid decision-making possible.

In the fourth evaluation (Saarela et al. 2009, 78), the proposal to the top unit was the unit of security management education. The feed-back of the panel stated that the clear management model of Laurea and concrete aims reflect in the work of the unit. At that time I was the rector of Laurea and I remember, when we, in the management group, reflected on the possibility of proposing only one unit to a top unit without demotivating the others. But the result was positive. The whole UAS felt that the achievement was a common one.

In the fifth evaluation (Auvinen et al. 2010, 146-148), the proposal to a top unit was student-centred integrated R&D. In the feed-back of the panel, a vision-based management model was presented, which the panel saw as motivating the staff. The hopes of the staff have been taken into account in its development. It was seen that pedagogical development work and continuing change give challenges to the teachers, but there was evidence of relevant support activities.



In the audit of quality assurance (Lampelo et al. 2010, 48) the panel evaluated that the vision-based management with the quality assurance system shape uniformity in the culture of Laurea so, that profiling of the local units is possible. The management is committed to development of activities and quality assurance and the staff is committed to developing the quality assurance. The connection between the quality assurance system and management was in an advanced phase, which was the best mark used. The interviews showed that the staff has internalised LbD and develops the activities in line with it.

LbD has been evaluated twice by the international evaluation panels (Vyakarman et al 2008 ). The RDI was evaluated by an international panel (Löytönen et al. 2011) and the curriculum work of Laurea was evaluated by a national panel (Auvinen et al. 2006).

The panel, led by Vyakarnam (2008, 10), stated the same fact as Antikainen some years before. It stated that the vision and values of LbD were clear, but had yet to be communicated effectively across the whole institution, because they found students and faculty who had not grasped the model. The

panel appreciated the open environment, relying on trust that students and faculty will sort it out. This helped to create a valuable culture of freedom and responsibility within Laurea. According to the panel, LbD was communicated in a very complex language. I remember that even the members of the board of Laurea spoke about “Laurea slang”.

In the international panel concerning RDI, the bottom-up policy was criticised. The panel recommended more emphasis on views by Laurea’s leadership and its role in creating a new research policy for Laurea. (Löytönen et al. 2011, 29-30.)

A curriculum review (Auvinen et al. 2006, 60-69) repeated the problem with the difficult language. The panel evaluated that the vision was clear, but there were many teachers who were not actively engaged in the change process. The result was the same as in the international evaluation (Vyakarman et al. 2008): the sense of ownership of creating LbD was one of the major benefits of it. This showed that the staff has experienced LbD as an appreciated brand of LbD.

Figure 2 presents the development phases in the leadership of LbD according to previous researches.

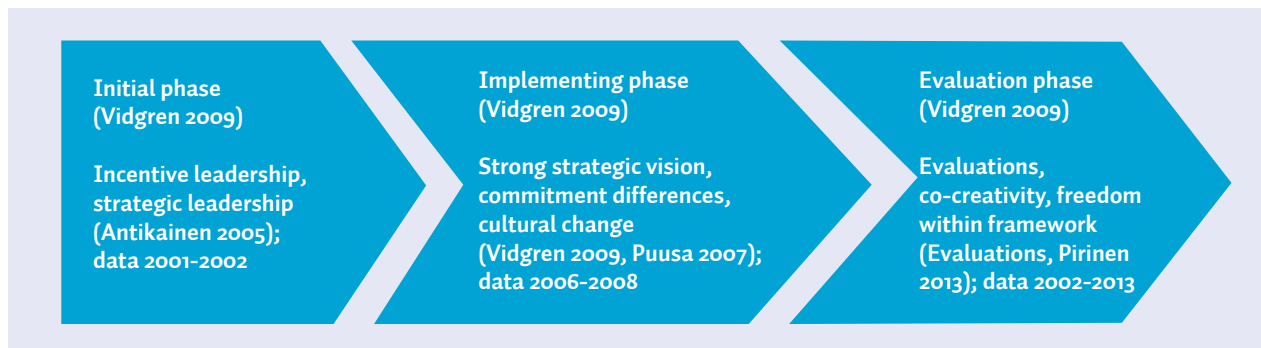


Figure 2. The development phases of the leadership in LbD

## Conclusions

LbD has challenged the traditional management and leadership practices in higher education institutions. It demands more co-operation between the teachers of different fields and presupposes a student to be an equal partner in learning and RDI-processes. From the research findings above, the transformative leadership (Kohtamäki), adhocracy (Beairsto) and multiframe leadership (Vuori) seem to be the most compatible with the principles of LbD. Empirical studies concerning Finnish UAS’s have showed that this kind of leadership is not largely present in Finnish UAS’s.

The studies and reviews of Laurea from a period of about ten years have expressed that from the first beginning, the clear vision derived from the pedagogical strategy has been

the strength of management of Laurea. Continually, the studies and evaluations have demonstrated that the language used has not been very communicative. There has been a clear gulf between the thoughts of the management and the staff, which has according the studies decreased, when the LbD has become more concrete and has developed the known brand of Laurea. In the former years, the staff was not willing to accept that R&D and regional development were also part of the core task of a UAS. LbD has challenged both the traditional teachership and the traditional leadership. The management should have had better tools to answer to the challenge.

The commitment of teachers in different fields has differed. The studies of both Puusa (2007, 141) and Vidgren (2009)



show that the business education teachers have been most critical of LbD. Vidgren (2009) argues that these findings are based on different vocational and academic backgrounds and with different experiences with co-operation with working life. This is interesting, because similar findings have been shown in vocational education, where health care students had more positive experiences with the practical training in working life than the students of technology. On this basis (Virtanen 2013), concludes that the ideal of similar vocational education is not valid. Also, in the study of Jaatinen (1999) concerning Satakunta UAS, the differences between the cultures of educational areas differed greatly. The social and health care area had the most positive attitudes towards the new UAS culture. This raised the question of whether, it would have been wise to pay more attention to the differences and obstacles between educational fields in implementing LbD. This does not include compromising about the aims of the reform, but taking into account that the tradition to work outside the auditory has been different.

For these reasons, the common seminars were the inevitable tool to promote LbD. Pirinen suggests, in his study, steering forums, which could be the next step in this tradition. Puusa (2007, 94) states, as a summary of many studies, that the attitude of the management towards communication is important in forming the identity and the success of an enterprise.

The management of Laurea was also evaluated several times during my rector period. I no longer have the exact results, but I remember that they did not demonstrate anything which would have been a cause for worry. Afterwards I reflected on whether the training of the transformative leadership should have been intensified in Laurea. Perhaps we were too committed to the strategic element of management. The fine result of this was that Laurea was the only UAS, which was elected five times as a top unit in the evaluations of FINHEEC. My experience is also that the preparation of these evaluations strongly developed the activities of Laurea. These evaluations were also important in the sense that the common achievements unified the teachers and students of the local units into a common UAS.

Traditional scientific procedure presupposes the evaluation of the reliability and the validity of the research. This article does not include any new empirical data. The article is a kind of meta-analysis based on the research work made by others. But I think that my former position gives me some perspective to interpret these findings. Of course this interpretation is subjective, which limits its reliability, but may improve its validity. ■

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## SOME EXPERIENCE-BASED CONSIDERATIONS ON THE LbD ACTION MODEL

### Abstract

The Learning-by-Developing action model (LbD) has been successfully used for over a decade. Still the basic foundations of the model are under constant discussion. This article considers the LbD model and its uses from five perspectives: from those of student, teacher, partner, administrator and society at large. After a short discussion from these five perspectives, the article proposes that LbD can be seen as an effective way to combine societal development and learning in a higher education institution. However, more scientific research would be needed in order to make comparisons on their efficiency between LbD and other pedagogical methods.

**Key words:** philosophy, pedagogy, learning, higher education, learning-by-developing

### Introduction

The Learning-by-Developing action model (LbD) has been in use in Laurea University of Applied Sciences and other academic institutions for over a decade under that name (Fränti & Pirinen, 2005; Raji, 2000; 2007). As the LbD action model will be thoroughly explored in the other articles of this publication, it will not be specifically defined in this one. However, for the benefit of a novice to the topic, LbD can be roughly defined as an approach to learning, where learning takes place in student-centric authentic development projects done in teams. These projects give the students a possibility to research the topic based on the current needs, use their research to come up with creative solutions and then get practical experience in putting their plans into action.

In addition to its continuous use, LbD has been studied extensively, at least from the viewpoints of learning (Fränti & Pirinen, 2005; Kallioinen, 2008), guidance (Pirinen, 2008), the profession of a teacher (Ora-Hyytiäinen & Rajalah-ti, 2009; Salmi & Kupari, 2011), evaluation (Ora-Hyytiäinen, 2009), research and development work (Pirinen & Rajamä-ki, 2010), and internship (Ignatius, Karhunen & Kukkonen,

2008). The philosophical foundations of the action model have been considered both in English (Taatila & Raji, 2012a) and in Finnish (Taatila & Raji, 2012b), and an international expert review has been performed at Laurea (Vyakarnam, Illes, Kolmos & Madritsch, 2008). Despite these and numerous other publications that have presented different uses of the LbD action model, a question about the fundamental nature of LbD is often raised. Probably the most elegant way it has been presented was used when the international evaluation board (Vyakarnam, Illes, Kolmos & Madritsch, 2008) gave its final presentation: “We know now that LbD is the answer, but what is the question?”

The challenge in trying to define LbD more comprehensively than in the beginning of this article is buried under several fundamental questions and points of view. For example, it is a different aspect to consider LbD from the perspective of an individual student doing a practical development project to that of education organisation building curriculums and implementation plans for 50 simultaneous programmes. Further: what is learning - how does one define when learning has occurred and how can the level of learning be evaluated? Or what is the ultimate mission of higher education,

upholding the universitas-tradition with a long and winding history, building a Humboldtian ideal or the one defined differently in the law books of different countries? LbD has been defined to be founded on five basic principles (authenticity, partnership, experiencing, creativity and the investigative approach) (Raij, 2007). -Is something considered LbD only if it uses all of these principles, or is a smaller sample of the five acceptable? How much of each these principles should be used for something to be LbD; i.e. if there are two students working peripherally together, is it partnership, or is reading one text book enough for investigative approach, or how creative must the solutions be and what is this thing called creativity, anyway? There is a proverb, at least in Finnish, stating: one fool can make more questions than 10 wise can answer, which comes to mind when one tries to explain his own view on LbD to someone who is naturally curious or fundamentally opposing it.

Thus, LbD, as a subject of inquiry, is still either at a rather abstract and general level or very focused on some individual case studies. This article will not, sadly, provide the reader with definite answers about the nature of the concept, but instead, it will try to bring some experience-based insights into the topic from different perspectives. The article considers LbD through its most basic underlying meanings: what it is, how it is used, and how it could be used in the most beneficial manner. In that sense, the author hopes that, despite its shortcomings, the article would at least function as a waypoint forward in the journey to deepen the full understanding of the LbD action model.

## Stakeholder approach

This article will explore LbD from different perspectives. The perspectives are selected from a utilitarian approach: Which are the stakeholder groups that are affected by LbD? A traditional approach is to consider the classification of stakeholders based on power to influence, the legitimacy of each stakeholder's relationship with the organisation, and the urgency of the stakeholder's claim on the organisation. The key question is to ask "which groups are stakeholders deserving or requiring manager's attention, and which are not?" (Mitchell, Agle & Wood, 1997).

A higher education institution has naturally numerous individual stakeholders, but for the purpose of this exploration five perspectives (student, teacher, partner, administrator and society) have been selected. The students and the teachers are quite obvious choices, as their interaction has traditionally been the main process of an educational institute. However, from the LbD point of view, the role of an external partner that provides learning opportunities has grown so that it is justifiable to consider their role as well. The

same goes for administrative processes; anybody who has either taught or studied in a higher education institution has been likely to encounter their effect on their tasks. The society, as a whole, was selected as, in the end, an educational institution exists in order to have a positive effect on the surrounding society as a whole. When viewed from this aspect, even the educational process and the graduates are considered as outputs for whose production the society is willing to make considerable investments. Through the perspectives of these stakeholder groups, it is possible to paint at least an impressionistic picture of different pros and cons of LbD. For each stakeholder group, the paper discusses their potential gains and losses related to LbD. In the end, a general discussion will pull these different perspectives together in order to try to answer the "ultimate question" of LbD: what is the question it answers?

## Student

LbD is all about learning, and as such, the learner - the student - is in the focal point. Learning through LbD differs quite dramatically from the most traditional type of learning in higher education. The most archaic picture of a learning process in a university involves a lecture hall, a reader giving some lectures, possibly some homework assignments, sometimes done as a group, and a paper-based examination in the end. A typical LbD project differs from most of these criteria dramatically.

An LbD project rarely takes place in university premises, even less often in lecture halls. An LbD project is ideally done at the location of the partners or customers - in a hospital, factory, office, shop or any other type of professional organisation that is being developed. LbD learning does not have an "all-knowing" teacher, but often one or several learning guides, who work as a part of the team trying to come up with a new solution. Thus, the learning guide is rarely the source of information, more often a process support and a person giving more difficult questions to consider. In an LbD project, work is normally done in a group, but there is no traditional homework as such. Each task is a part of the overall project, and they are done in order to get the project ready, not in order to accumulate additional points for the final examination. Often there is no traditional examination either, but learning is shown through the whole project and the results, and codified into a learning diary or a final report. There may also be some group-based after action-review sessions, which are not solely aimed at evaluating the level of competence acquired but also on learning to reflect and learn more from earlier tasks.

Thus, the student experience in an LbD-process requires each student to become an active member of a development



effort. In that sense, an LbD-project is rather closely related to any expert-based development job. The students are expected to focus fully on solving the problem at hand and to come up with the best possible solution considering the given resources and time-frames, not to give an adequate solution in which the practicalities are pushed aside. This type of learning may put the students under very heavy stress for quite different reasons than a more traditional learning process.

In a more traditional learning setting, a lot of stress comes from administrative details like timetables and attendance requirements, as well as from everything related to examinations and other grade-related activities. The sources of stress in LbD are not smaller but rather different. A student should be very aware of the motivation for the project. The time management is often crucial as the partner expects the results to be delivered on time. Also, the stress created from an open environment is considerable, as well as that of fulfilling the expectations. Stress may also be created through the dynamics of the group and other human interactions.

While motivation for the project often is a major positive boost for a student, it may also become a very burdensome experience. If, for example, a project is done in a health care setting, the students may personally see the current problems for the patients. As the project is put together to decrease the pain or suffering, it may simultaneously give a student such a heavy load to carry that the stress rises to a negative level (as an example of stress factors in a rather LbD-like case, see the story about Dr. Jay Freireich and his battle to cure childhood leukemia in Malcolm Gladwell's book "David and Goliath" (Gladwell, 2013)). Similar situations may rise in any project if the students become "over-motivated" with the importance of the problem. Still, while negative stress is not a goal, it can be asked whether the source of stress would have some effect on learning. If the stress comes from solving the actual problems in the field of study, instead of guesstimating the examination questions, could this possibly lead to deeper expertise in the topic?

The stress of time management may be quite different to what the students have experienced before. In a typical development project, time is a very limited resource. There is a strict deadline and only a few hours to use for solving the problem. After the solution is put into use, it is expected to run faultlessly without continuous maintenance and re-development projects. Thus, a deadline becomes a deadline and not one minor point in the continuum, after which one can always go to another course or examination.

The open environment is rather different to that of the environment of a traditional learning situation or rigid

experimental laboratories. In those situations, it is possible to limit the amount of variables, but in real life situations, it is much harder. A student has to factor all the potential variables into the solution, and still it may be that something unforeseen made the project a failure.

The expectations of the customers, colleagues or self may be hard to fulfil. If, for example, the project is about developing a new product for a company, the expectation may be very high in the beginning, but as the reality of the available resources becomes a factor, the stress in overcoming the obstacles may become very high. This is even more demanding as an unsuccessful project may limit a student's desire to be employed in the partner organisation. While a real-life situation offers real learning opportunities, it also offers opportunities for career failure even before the beginning of one.

The amount and quality of human interaction may also become stressful for a student. In a more traditional setting, it is possible to accept a lower standard in studying or teamwork, as there is a threshold defining the acceptable minimum level of accomplishment. In an LbD project, the minimum level is often undefined, the sky is the limit and there are always ideas on how to improve the result. When this type of open situation is attached into a potential situation to make a positive impression on a future employer or customer, the peer pressure requiring ever better quality and commitment may build very high and very quickly. When the aims are high and time is limited, human interaction may easily become very direct and demanding.

However, one of the hidden learning goals in higher education probably is the ability to withstand stress. Thus, both traditional and LbD learning situations can provide a student with excellent learning opportunities, although a bit different. While the sources and factors of stress in the traditional process are mainly related to administrative processes and reaching of set goals, the factors in an LbD situation are related to working in interactive settings while solving open-ended problems. Looking from the working life perspective, the former are related to bureaucracies and public organisations, the latter to innovations and private organisations. In the end, the question is which type of stress is preferable to learn to cope with during higher education depends on the future career prospects of the graduate: Is bureaucracy or innovation the goal?

### "Teacher"

When learning takes place through student-centric developing activities, what is the role of a teacher? Developing per se does not require an external facilitator or an expert, but a keen mind and a goal-oriented attitude. There is even a clear



danger in having an interested expert supporting the development work of a learner. For example, the expert may wish to “show how it is done” and not give the learner a chance to test different methods herself, or the expert may guide the process into using traditional solutions and thus hinder the finding of some new and more innovative ways to tackle the problem.

Still, the author believes that some type of a learning guide can be very beneficial even in the most pragmatic approaches to learning, like LbD. If the learning is left only to the learners themselves, there are several potential pitfalls. Firstly, several people benefit from external motivation to their work. Having to rely on only internal motivation, the desire to solve the problem and learning on the side would probably be insufficient for a lot of competencies that modern students need to accumulate during their studies. The author, for one, confesses that there are several subject matters that would have been beneficial to his career, the learning of which his internal motivation has been very inadequate. In these cases, a carefully prepared motivational support would have helped a younger mind in building a more comprehensive picture on the potential competence needs in the chosen career.

Secondly, people in general tend to be lazy when it comes to creating novel ideas, as the primary system of our brain tries to solve the problems while using the least amount of energy in the process (for an excellent discussion about the thinking processes, see (Kahneman, 2011)). We often choose the first possibility and do not dwell deeper into the phenomenon to find other possible alternatives. In these situations, a mentor can challenge us and push us forward by asking good questions and not approving the immediate obvious answers.

Thirdly, there is a wide selection of ways by which development work can be done. Again, it would be easy to select only one tool and use it for solving all future problems, but it would not serve the purpose in the most efficient manner - one can use a hammer for numerous tasks, but in some situations a saw or a chisel may be more purposeful. A good learning guide can support the use of different techniques and propose new ones for the learner to try.

Fourthly, there come times when peer-support or knowledge available from other sources is not enough. A learner may not understand the facts or theories or may need ideas about additional sources of information. In these cases, the learning guide may provide the information or direct the puzzled student to the proper source. Another example of this task are the situations in which the student has internalised some “wrong” knowledge, like something based on an outdated or otherwise inadequate source. Again, it would be

the task of the teacher to point out the related problems and guide the learner into a more appropriate direction.

Fifthly, nobody needs to verify the learning results. Has the student acquired the required level of skills and knowledge to be judged competent for the subject? A teacher that has closely followed the learning process is in a good position to use expert understanding, both of the subject and learning, to evaluate if an adequate level has been reached. Evaluation of learning may actually be one of the least considered, but in the future most important, aspects of the profession of teachers, as the students collect increasingly more knowledge through other than classroom-based processes, and someone has to verify that their skills are on par with the requirements.

There are probably several other tasks for a teacher as well, but listing from the previous discussion, at least five roles evolve: motivator, challenger, process consultant, information source, and evaluator. These roles are needed in varying levels in different learning situations and rarely the same combination is applicable in two cases. Considering these five roles in a more traditional teaching setting, they may also be present there, but quite often the role of information source outshines the others - though there is naturally a great variation here as well. In an LbD settings, the role of the information source is probably the least important of the five, as a student can always be guided for some other person for expert consultation, but it probably helps in building trust between the student, the partner and the teacher if the teacher is at least adequately knowledgeable on the topic.

## Partner

The third wheel of the LbD barrow is a partner, i.e. the person or organisation who directly benefits from the LbD projects. Often, an LbD case begins from the development need of a partner, who then conveys it to the higher education institution - to the teachers and students. During the project, a partner should preferably be heavily involved with the project, but that is not always the case. The project ends with an evaluation, where the partner presents the views about the project and the results and may also give additional development ideas to the project members. Thus, a partner is in a very central role in the learning.

An LbD-project needs a learning case, which creates a great need for partners who provide these opportunities. However, an LbD-process is not only a one-way route towards students but it provides the partners with several other opportunities in addition to the personal delight in learning provision. Firstly, a partner may use LbD for actually improving their own operations. As each project should create new

and innovative solutions to real problems, a shrewd partner can benefit greatly from their results. A partner may, for example, use LbD projects in new product or service development, improvement of customer satisfaction or internal processes, or even developing their strategy. An LbD project may be used for nearly any task that a temporary consultancy project could be used for; the “LbD consultants” are normally less experienced, interested in learning something new in the process and considerably cheaper than their professional counterparts.

Another task that an LbD project may be used for is in recruiting and long-term talent identification. An LbD project provides the partner with a considerably deeper knowledge about the abilities of a potential recruit than the more traditional approach of application, references and interview. An LbD project gives the partner a good opportunity to study how the students work under stress and how well they actually know the topic they are working with, as well as how motivated they are for the partner and the task.

A partner may also use an LbD project for self-educational purposes. In LbD, the students normally do some level of literature review or a research project to give them background on the topic, and these may give the partner some new knowledge as well. For example, it is possible to use the students to benchmark several similar operations and, based on the accumulated knowledge, propose process or product improvement for the partner.

In short, a good LbD project is very much a threefold winning case, where the partner, the student and the institution receive positive gains.

### Administrator

The effects that LbD has on higher education administration have not been considered in detail in previous publications. The general sentiment within the texts has been that the administration will bend according to the needs of the pedagogic process. Even though this is often the case, the administrative process may sometimes create some limitations on the use of LbD, and it would be beneficial to consider this aspect as well.

At least the Finnish higher education tradition is based, to a large extent, on periodical learning units. A student often has several learning units going on simultaneously with a few hours of weekly contact teaching per learning unit. This tradition can be seen, for example, in the personal daily schedules of the students, which are not totally unlike the timetables of primary and secondary education.

The administrative process of higher education institutions are often very efficiently organised to support this type of learning. The main variables are the availability of resources (teachers, venues, equipment, etc.), the curricula and the expected behaviour of the students. These variables are considered in detail and a multi-dimensional matrix is created to optimise the needs presented in different variables. Quite often the result is that the teaching will take place during certain fixed periods, in learning units of defined minimum and maximum sizes, mainly between 8 am and 4 pm (except for students that have a daytime job). Based on a purely personal observation, it seems that this process is also optimised so that the premises are packed from Tuesday to Thursday, from 10 am to 4 pm, and on Monday mornings, as well as Friday afternoons, hallways and classrooms are rather quiet. In addition to the lectures, the students will also study and do project work in their “free” time, and the results are presented within the mentioned schedule.

The LbD approach is not easy to fit into this type of thinking, which has created friction between the goals and reality. Firstly, LbD learning should be based on the needs and schedules of the surrounding society, not on the administrative timetables of a higher education institution. It is often the case that a development project is needed “right now” and the results should be available “yesterday”. In this situation, a student or a teacher who promises to work on a project during the next academic year or period is not a desired partner, and the project often goes to someone else. If all the resources - students, teachers, laboratories, etc. - are tied to the usage previously defined, it is very difficult to make them available as per request.

Secondly, the learning goals of individual courses and the learning potential provided by individual projects do not necessarily meet. Let’s say that in order to graduate, a student must master skills from A to H. The university may have collected them into four courses: AB, CD, EF and GH, each given separately in its own period. Now, a good LbD project is available, but it would only give students learning in A, E and G; how should the problem be solved? Will the student pass courses AB, EF and GH, but with lower grades, because only partial learning has been demonstrated when compared to the learning goals of each course? Will the student be given partial credits for each course and then have to partly participate in these three courses? Of course the contents are often well-mingled, so in which parts is participation required? Will the student need to take the full courses anyway, because defining the line between A and B is difficult, and in the end, the LbD project will be defined as some extra-curricular learning unit that gives credits but does not build towards the degree?

Thirdly, how can learning be assessed? The learning in an LbD project is often quite different and more multidimensional than learning in a classroom. However, there are often some aspects that have not been covered in a project, so how can they be taken into account? Or, vice versa, how should additional skills accumulated during the process be taken into consideration? Are the group-based or project report-based assessment methods fair when compared to the traditional exams? On the other hand, does a traditional exam measure the actual learning or only some accidental pieces of information presented during the course?

Fourthly, what happens, if the project is not successful? What if the student group fails to reach the goals despite the hard effort? Can learning still have taken place, and can the credits be given? How can one assess learning in these cases?

Fifthly, should the university consider the amount of work the students do in order to get credits? What constitutes “work”; is it fair to compare participation in lectures and actual development work in a real-life situation? It is often interesting to read the course requirements that, for instance, list 80% participation requirement in the classes, but the activity level of the students is not relevant in practice. Thus, a student may be able to log in large amounts of hours with relatively low effort and learning. Similarly, a student may already have a lot of experience on a subject beforehand and is then able to accomplish the project work in a very short time, thus cumulating only a few hours but showing a high level of competence. So, do we credit the students for effort or for competence?

A lot of criticism towards LbD rises from these types of administrative questions. People are justifiably worried that they will put the students into unequal positions in regards to the evaluation criteria, the amount of work and contents of learning. However, if learning from LbD can be considered effective and need-based, can we let these questions guide our direction? If so, the learning does not take a central place in an organisation, administration does; and it is a question worth asking if that should be the frame of mind in a modern university.

## Society

At the very core, a higher education institution exists because the surrounding society so desires. Society may consider the institution as a provider of competence and new knowledge, or of some other tasks; but in the end game, very few institutes could exist without some external agents investing in them. The investment may come from the government or some other public source, companies, individual citizens, such as the parents of the students, but in all

cases, from someone outside the institute itself who believes that it is important to have the institution in existence.

Depending on the source of financing and vested interests, the societies may have different expectations towards the HEIs. Due to the background of the author, the case of Finnish higher education situation will be used in the article; but the reader is encouraged to consider the societal requirements from their own perspective.

In Finland, higher education is financed by the government, by law. Higher education is divided into two tiers, universities and universities of applied sciences. Both institutions have very specific tasks and goals in the higher education system. The mission of the traditional universities is to “promote free research and academic and artistic education, to provide higher education based on research, and to educate students to serve their country and humanity” (Finnish Law, act 24.7.2009/558, §2). They must also “promote lifelong learning, interact with the surrounding society and promote the impact of research findings and artistic activities on society” (Ibid). The UASs exist in order to “provide higher education for professional expert jobs based on the requirements of working life and its development; support the professional growth of individuals; and carry out applied research and development that serves polytechnic education, supports the world of work and regional development, and takes the industrial structure of the region into account” (Finnish Law, act 2003/351, §4).

While the two tiers have somewhat differentiated missions, there are also several commonalities. The higher education system in Finland seems to exist for three purposes:

1. educating students for the benefit of the society, close or far,
2. making research and development work that is beneficial to the society at large, and
3. to support the continuous development of the surrounding society.

Thus, all the goals given for the existence of a higher education institution is, in the end, related to the benefits it is able to make to society, both locally and globally. These three goals can be used as the starting points to consider the effect of LbD for the societal purposes.

The educational process has already been considered in the chapter about students, partners and teachers. A major remaining question is the question of the overall purpose of education. (Ardalan, 2008) and (Tautila & Raji, 2012a) have presented a view that, when considered further, the goal of education is based on personal beliefs, the personal

philosophy of education depending on the personal paradigm on the world and the society.

The ends of the spectrum of this discussion have been defined as a functionalistic and interpretative paradigm (Burrell & Morgan, 1979). In short, a functionalistic paradigm treats the social world like a natural world, as a collection of orderly facts that can be studied objectively, and the task of a teacher is then to teach revealed facts to the students. This type of pedagogical philosophy is generally defined as realism (Ardalan, 2008). The interpretive paradigm sees the social world as an ever-changing place in which the researcher interprets situations, but knows that the rules determined in the first situation are not necessarily true in the next. This view states as the goals of education that students should “learn the process of discovery and self-sufficiency as much as the facts that are discovered”. This type of pedagogical philosophy is often defined as pragmatism (Ardalan, 2008).

Under the realism-based pedagogy, LbD is one possible tool through which the teacher can reveal the laws of the social world to students. However, there are several potential difficulties related to this process, as the open situation cannot be fully controlled in a teaching situation. For example, if the topic of medical teaching would be caring for a patient with measles, it is possible that, during the diagnosis, another higher-priority disease is found, and the treatment should be aimed at that, in which case the students’ ability to learn the treatment of measles is endangered.

However, if a person looks at the same situation through glasses of pragmatism, the situation takes a different view. It is a very typical situation in the medical profession that the diagnosis changes during the process, and a competent physician should be able to change perceptions accordingly. If the world is considered within interpretative paradigm, the students have not only been given an opportunity to learn to diagnose and treat a specific illness, but they have also learned some important process-related skills and non-tacit professional practices. True, their capability to learn about the treatment of measles has been hampered, but they may learn that part later, and they have used the time for learning something more valuable.

As a personal view, the author is more lenient towards interpretive paradigm and thus pragmatism, favouring the learning opportunities it provides. However, as Ardalan (2008) presented, the choice between paradigms is a very personal one, very difficult to change, and it guides the majority of choices related to the educational process. Thus, a person looking at the same situation from a functionalistic paradigm may have a very different view on the effect of LbD

learning from the societal point of view. Still, under interpretive paradigm, it would seem that the LbD-type of practical learning will give the students an effective learning environment to develop their competence for the practical benefits of society.

The effect of LbD on research and development work is similarly a two-edged sword. As discussed earlier, LbD can be effectively used for the development of existing processes and organisations. LbD would also probably work rather well in applied research, when the focus is mainly on researching a subject in order to apply the results in some practical situation or, as in action research, simultaneously developing and researching a topic in an abductive process (Suomala; Taatila; Siltala; & Keskinen, 2005). However, when thinking of a rigorous scientific process of basic research, in which the research questions are carefully dissected into objectively researchable chunks and then studied in controlled situations, it is good to question whether LbD is the most beneficial method for this process. LbD can be used for learning this process, but actually doing basic research is a carefully scripted and often repetitive process, in which innovation is needed but only in predesigned phases of a project. Changing the research setting in each measurement, for example, would give interesting learning opportunities but not trustworthy and repeatable results. Thus, LbD would probably be a difficult choice in basic research, though simultaneously it would offer good opportunities for applied research and development projects.

To continue on that idea to the third mission of higher education, the development of the surrounding society, LbD looks like a potentially positive choice. Whether the development is indigenous or exogenous from the higher education institution, LbD can offer several advantages in putting the competence into practice in the society. As both LbD and development aim at something actual being done and some real results evolving, they would form a coherent whole, a learning environment that also educates its environment. LbD allows for changes to be made during the process and the original goals to be re-tuned as the real world makes it necessary to accommodate the textbook solution to the ever-changing situations. Whether the surrounding society is considered as the SME on the other side of the street or the humanity, putting ideas into practice often requires a wide skill set, not only deep subject matter knowledge of the development topic. Negotiating skills, competence to convince and sell ideas, capability to find new and alternative solutions related to practical requirements, ability to take the available resources into consideration etc. are all things that LbD allows to be used and learned.

## Discussion - the ultimate question

So, does the previous discussion shed light to our “Jeopardy!” –question: what is the question the LbD is the answer for? At least it does not seem to be related to scientific research. Basic research has been successful without LbD for a long time, and making research processes more creative would not be very beneficial to their reliability. Even though LbD can be used successfully in applied research, development projects and disseminating the results, at the moment it looks likely that the traditional research methodologies are effective enough in their tasks of revealing new knowledge.

Another perspective that had some reservations about LbD was the administrative one. It is easy to see how LbD may create problems when introduced into the administrative setting of a more traditional learning environment. However, this is a typical case of the direction of wagging between a dog and its tail. Is it the pedagogic body that wags the administrative tail or other way around? Coming back to the mission of higher education institutions, at least in Finland, there is no mention about effective administration which the pedagogic process is supporting. Thus it is safe to state that the focus should, legally in Finland, be in the educative, scientific and developing processes, not on administrative ones. Thus, even though the question should be taken into consideration, the administration should focus in finding effective ways to manage the pedagogic process; the body should still wag the tail. In this vein, the potential administrative problems should not be allowed to force changes in LbD if it is considered an effective way for HEI to accomplish its mission.

With basic research removed from the playing field, the proposal for the questions is: “What is an effective way to

combine societal development and learning in a higher education institution?” There is considerable evidence that LbD is an effective way to combine these tasks as mentioned in the first paragraph of the article. Looking at LbD from the five perspectives, the justification for the method always seemed to rise from this aspect. Noticing, but not taking the administrative difficulties into consideration and removing the notions of scientific process in order to focus more on the actual development work, will focus the million euro question into areas in which available evidence does exist.

One should also note that the proposed question neither compares LbD’s effectiveness into other potential learning methods nor does it define the distinctions between them and LbD. Being able to make reliable comparisons between closely related pragmatic methods would require long-term repetitive tests between their processes and effects, and even before that, clearly defining one method and when it should be used. Looking at different educational methods, it is very difficult to clearly define the boundaries as they are often used in learning environments that share several aspects of different pedagogic approaches. A pragmatist might even ask, what purpose such a comparison would advance, as the exact measurement of learning is difficult in itself, and in the end, dependent on the goals of the learning, which are not often clearly and equivocally defined. However, as a person who strongly believes in the potential benefits of rigorous scientific process, the author would urge some research to be made on this topic. If we can find a method, or at least some guidelines, which will direct us towards more effective learning and development of our societies, it could potentially have a huge effect on future generations. Thus, despite the difficulties, the topic of comparing educational approaches should be continued even more rigorously than before. ■



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## REAL-WORLD PEDAGOGICAL APPROACH TO THE CAREER PLANNING OF STUDENTS AT UNIVERSITIES OF APPLIED SCIENCES AND SUPPORT FOR PROFESSIONAL IDENTITY

### Abstract

Learning by Developing enables students to increase their knowledge by participating in shared development projects with partners from real working life. At the same time, students get the opportunity to network with professionals and learn about different kinds of expertise of working life. The modernisation of expert work is remarkable and rapid, so it is very challenging for students to comprehend all the new career opportunities available to them. Due to the modernisation of expert work, career planning requires a real-world pedagogical approach, like Learning by Developing.

Based on Koski's dissertation, this article examines the curriculum of universities of applied sciences and career planning. Professional classifications are no longer able to adequately describe modern expert professions, as the professions and professional titles are being increasingly updated and their meaning is becoming more ambiguous. In the instruction and career guidance provided by universities of applied sciences, it is important to provide support for students while they are making decisions and help them see the consequences of choices as well as their changing nature. A real-world pedagogical approach, with "Learning by Developing" serving as an example, would seem to offer an interesting answer and model for university of applied sciences pedagogy. The continuous interaction and

**Key words:** Career planning, hybrid professions, real-world pedagogical approach

### Introduction

The modernisation of expert work is remarkable and rapid, so it is very challenging for students to comprehend all the new career opportunities available to them and build a respective professional identity. This is especially clear in the first years of study and the growth of professional identity needs time to mature. For example Ora-Hyytiäinen (2004) made a substantive theory of nursing students' professional identity development and found out how it developed from a "helper" to a "nurse", only gradually becoming a member of a community of other professionals. The critical importance

of communication with the representatives of the world of work to the professional identity and growth is highlighted in the recent dissertation made by Niinistö-Sivuranta (2013). There needs to be a real-world context for this type of communication, professional identity formation and growth to take place in the higher education processes.

Due to this situation and the ultimate modernisation of expert work, career planning requires a real-world pedagogical approach. Based on the systemic and strategic development and research done in Laurea on the Learning by Developing –model, it seems to be a promising and logical

answer to these needs. The student should actively, and in a process-oriented manner, build their professional identity in such a way that it is linked to the curriculum (Kelley & Bridges 2005, p. 212; Luhtaanmäki 2011, p. 110) and personal study plan (HOPS).

Learning by Developing enables students to increase their knowledge, construct their identity and make career choices by participating in shared development projects with partners from real working life. At the same time, students get the opportunity to network with professionals and learn about different kinds of expertise of working life.

Based on Koski's dissertation (2014), this article examines the curriculum of universities of applied sciences and career planning in the professional identity work of students. The dissertation deals with the professional conceptions of BBA students. The qualitative study was based on ontological assumptions about people's different conceptions of the surrounding world. The study's aim was not to capture reality as such but instead to concentrate on how reality is being construed by the research subjects. Koski used phenomenography as the research method, because it focuses not on a given phenomenon as such but on the conceptions of the phenomenon among the research subjects. In Koski's study, the sample group (N=30) consisted of Finnish-speaking students pursuing a Bachelor of Business Administration degree in Finnish in the Degree Programme in Business Management at the Hyvinkää unit of the Laurea University of Applied Sciences in Finland. The research material consisted of text files that were collected from the research subjects. The BBA students used word-processing software to write their answers to written open questions presented to them during sessions led by the researcher. A phenomenographic analysis was done on the research material. Meaningful expressions found in the material were formed into units of meaning.

The content of these units of meaning was used to develop higher-level categories with a theoretical relevance.

This article analyses curricula, career planning and changes in professions, particularly where the developmental challenges facing universities of applied sciences are concerned. Universities of applied sciences must be able to effectively communicate the study alternatives offered, so that applicants can compare them with conceptions of the careers and professional choices they are considering when looking for suitable study alternatives.

How should young students be supported in choosing study alternatives, so that the choices made support their developing professional identity and career? What kind of pedagogical models are needed? A real-world pedagogical approach, with "Learning by Developing" serving as an example, would seem to offer an interesting answer and model for university of applied sciences pedagogy.

## Modernisation of expert work

Koski (2014, p. 75) analysed development in the work of experts, citing Kasvio (2008, p. 149). Expert work is proliferating (Pyöriä 2006, p. 56), 2) as well as becoming professionalised (Konttinen 1997, p. 60; Tuominen & Wihersaari 2006, pp.103–104) and subjectivised (Julkunen 2008, p. 269; Järven-sivu & Alasoini 2012, p. 38). Professional classifications are no longer able to adequately describe modern expert professions, as the professions and professional titles are being increasingly updated and their meaning more ambiguous (Helakorpi 1992, p.197; Julkunen 2007, p. 35).

The consequences of the modernisation of expert work are shown in Figure 1.

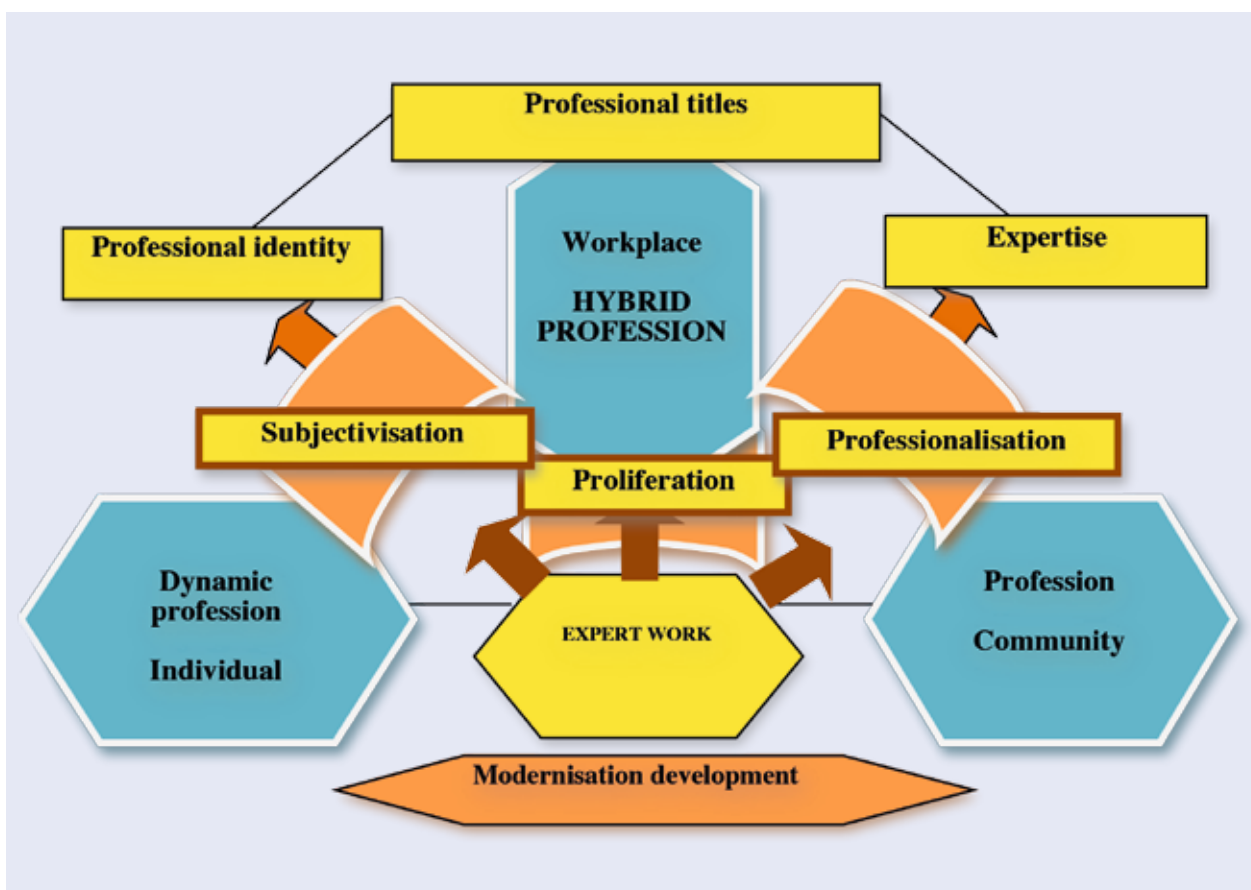


Figure 1. Consequences of the modernisation of expert work (Koski 2014, p. 76)

Alongside traditional professions, we are seeing hybrid professions (Hanhinen 2010, pp. 45–46). The expertise and skills that once belonged to old, familiar professions are being combined in new ways. At the same time, expert work is becoming subjectivised (Julkunen 2008, p. 269; Järvensivu & Alasoini 2012, p. 38), wherein the individual's conception and interpretation of their own profession are emphasised (Tuominen & Wihersaari 2003, p. 22). A profession is not a static decision made once and determining everything for the rest of the individual's life. On the contrary, a profession is dynamic and variable – it can be influenced, and the individual can construct their own professional identity (Tuominen & Wihersaari 2006, p. 121).

### Professional identity and career planning at a university of applied sciences

In the instruction and career guidance provided by universities of applied sciences, it is important to support youths in making decisions and help them see the consequences of choices as well as their changing nature. Understanding an increasingly complex workplace can seem confusing. However, it is also comforting to know that the consequences of

individual decisions are not as irreversible as they once often were.

Professional growth and life-long learning in the workplace help to build the individual's professional identity (Eteläpelto 2007, pp. 91–92). For young students, the workplace experiences and learning opportunities afforded by a university of applied sciences education provide an environment for learning the necessary skills for a given profession, whilst building their own professional identity and putting it to the test. Building identity is active – a person identifies and shapes their own profession as an active contributor (cf. Eteläpelto 2007, p. 94). Professional identity can be linked to known professional titles, but it can also be independent of them (Koski 2014, p. 77). Traditional professions are thereby replaced with new ones. Youths and adults have the possibility of creating their own professional identity as well as identifying what kinds of professions and professional identities do not seem suitable to them.

The modernisation of expert work and greater nonlinearity in the professional sphere challenges the educational institution's career guidance services and its relationships with the workplace. The workplace can offer more, wider-ranging

opportunities for professional growth than before. (Ryan & Tomlin 2010, p. 84.)

The student's professional growth toward attaining professional expertise begins when he or she first applies for study (Mäntylä 2007, p. 93, 100). Studies are nonlinearised (Stenström 2012, p. 9) and choosing a profession seems increasingly complicated to the individual (Räihä 2010, p. 21). The student needs support in building their personal professional vision (Niles 2011, p. 175) in a nonlinearising professional sphere (Ryan et al. 2010, p. 84). In career planning at universities of applied sciences, it is important to support students in making their choices, so that the alternatives available in the workplace do not seem uncontrollably complicated.

In a continuous co-operative relationship with the workplace, the formal knowledge acquired by university of applied sciences students (at school) and the practical knowledge acquired through the performance of work (at work) are integrated as metacognitive knowledge develops (Sampson et al. 1992, pp. 67–74; Eteläpelto 1997, p. 97; Peterson et al. 2003, pp. 5–6). A competency-based curriculum supports the setting of individual competency goals (Campbell et al. 2010, p. 661), wherein students can target the development of their competencies to meet the competency requirements of their chosen expert profession as they gain greater knowledge of their own competencies.

## Curricula and career plans becoming more personalised

The personalisation of studies provides considerable support for student career planning (Onnismaa 2007, p. 72). Students with gainful employment, in addition to their university of applied sciences studies, have become more the rule than the exception (Karhunen et al. 2012, p. 28). In public debate, this is often seen as a problem. In the operating model, based on co-operation with the workplace, the gainful employment of university of applied sciences students, as opposed to doing practical training, is considered a learning opportunity. It should always be included as a conscious part of career planning and also taken into consideration in career guidance (Koski 2014, p. 206). In learning based on co-operation with the workplace (Karns 2005, p. 170), this is natural, as in learning by development (LbD), which endeavours to develop the workplace, one is familiar with the accreditation of prior

learning. A broad-based and continuous co-operation with the workplace, as well as being gainfully employed during studies, help students to examine their own expertise and develop their own personal study plan.

The subjectivisation of expert work (Julkunen 2008, p. 269; Järvensivu & Alasoini 2012, p. 38) means that expertise must be examined in relation to the individual him or herself (Iso-pahkala-Bouret 2008, p. 84). This is why a university of applied sciences curriculum must allow for personalised solutions. According to Koski (2014, p. 206), the modernisation trend of expert work (Kasvio 2008, p. 149) guides the career planning of an individual endeavouring to enter professional expert work toward choosing a dynamic profession (Tuominen & Wihersaari 2006, p. 122) as opposed to a normative (Eteläpelto 1997, p. 93) and restrictive (Lehtinen ym. 1997, p. 115) concept of the profession. In such cases, the individual shapes their own professional identity, which Koski (2014, p. 204) describes as developing spirally, when the individual has identified their own profession (Eteläpelto 2007, p. 94).

## Subjectivity and earned professional self-esteem

Despite its changes, expert work remains, in subjective terms, one of the most important sources of self-esteem (Julkunen 2008, p. 269). The valid professional identity of a post-modern expert as an individual in the workplace is emphasised (Leivo 2010, pp. 43–44). At the same time, the individual bears greater responsibility for their own professional self-esteem.

In the study conducted by Koski (2014, p. 206), according to the conceptions of Bachelor of Business Administration students, the profession of expert can be seen as being an open profession, whose status in a competitive environment is earned through performance. The students' conception of profession is, therefore, not dependent on any professional title, nor is it a monopolistic (Konttinen 1997, p. 52) position or one that is socially restricted to members of a certain profession (Lehtinen et al. 1997, p. 115). In this case, an individual can link the pride they feel in their work to the profession of expert (Rummukainen 2007, pp. 14–15), which then also provides inner satisfaction (Uusitalo 1999, p. 196) and allows the individual to be happy in their profession (Uhmavaara et al. 2005, pp. 122–123).

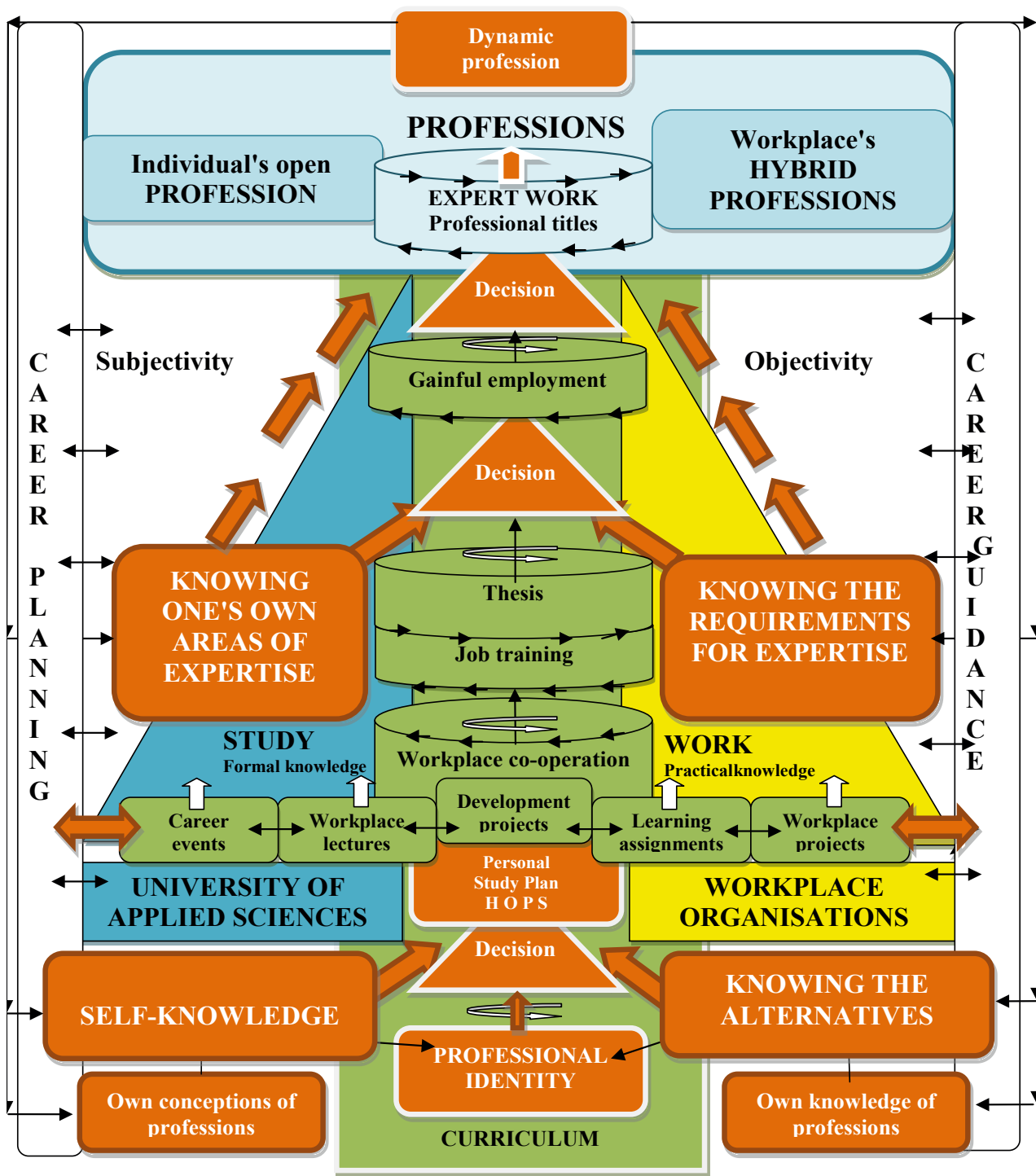


Figure 2. Career planning construct for professional expert work (Koski 2014, p. 204)

Koski's career planning construct (Figure 2) is a tool for examining the curricula and career services of a university of applied sciences. The foundation of career planning is based upon the student's self-knowledge and their own competencies as well as requiring various alternatives for familiarity with competency requirements (Sampson et al. 1992, pp. 67-74; Peterson et al. 2003, p. 5). The modernisation of professions emphasises the significance of profession conceptions in guidance. Students would be required to explain their own conceptions of professions and consciously reconstruct them as they completed their degrees. Only then could the student make conscious choices between desirable and undesirable professions as well as link study choices in order to support career choices using their personal study plan (Koski 2014, p. 207).

In such cases, a social context that makes continuous and extensive co-operation with the workplace possible would play a key role (Eteläpelto et al. 2006, p. 26). As a result, the individual's professional concept of self would evolve, their own attitudes would change, and their critical analysis skills would develop, thus providing them with the skills for professional expert work (Mäntylä 2007, p. 93).

The career planning process can proceed linearly or return to the start, or other phase, of the process, when the professional concept of self develops. Choosing a dynamic expert profession places not only the individual's professional identity and knowledge of professions at the centre of career planning, but also the students' own conceptions of professions, which should also be given sufficient consideration in career planning (Koski 2014, p. 208).

## Conclusions and reflections

Career planning should play a central role in the professional growth process at universities of applied sciences, with linkages to curricula and learning, which are systematically supported by career guidance. Career planning begins when choosing studies. It must not be put off until recruiting activities are organised by the higher education institution in the final phase of studies or used as a means of correcting an acute problem (cf. Erkkilä 2011, p. 32).

Career planning and its attendant guidance function are most effective when linked to the curriculum (Kelley & Bridges 2005, p. 212; Luhtaanmäki 2011, p. 110), and the competency

goals, instruction and guidance specified in it. The comprehensive integration of career planning in the curriculum is easily realised in learning based on co-operation with the workplace (Karns 2005, p. 170). Becoming a professional requires working with professionals and participating in the development of the working community (Edmond 2010, p. 320). Finding a suitable profession, particularly choosing one that is modern and dynamic (Koski 2014, 2004), is an extended process (Sampson 2009, p. 92). Career planning can be learned together with other expert skills (Liimatainen 2011, p. 52), and students should be encouraged to engage in it, learning it as part of workplace-based learning (Karns 2005, p. 170).

Learning based on co-operation with the workplace (Karns 2005, p. 170) offers excellent opportunities for process-type learning and career guidance that promotes the student's personal identity work. As a pedagogical model, Learning by Developing (LbD) represents learning based on co-operation with the workplace (Koski 2014, p. 213), thus meeting the requirements for variable expert work. This allows for close and wide-ranging co-operation between a university of applied sciences and workplace organisations, in which the professional identity of students and workplace networks can be developed throughout their studies (Mäntylä 2007, p. 94).

In the future, earning one's degree and the performance of study processes will be emphasised as performance indicators in higher education institutions. From a student standpoint, the characterisation of future alternatives is of the utmost importance as a motivating and developing factor for study (Mäntylä 2007, p. 95). According to the results of a study conducted by Kouvo et al. (2011, p. 38), if students fail to have a clearly defined understanding of what their studies are aiming for after graduation, their study motivation will also be affected. The study showed that higher education students typically do not become career-oriented until the final phase of their studies; whilst in the initial phase, they are focused solely on completing their studies and graduating (Farner & Brown 2008, p. 112). In learning based on co-operation with the workplace (Karns 2005, p. 170), such as the workplace development-oriented Learning by Developing (LbD), the students receive more professional stimuli and examples. These can presumably promote motivation and encourage students to plan their professional future at an earlier point in their studies than in conventional classroom and course-form learning. ■



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## PROJECT AS A PATCHWORK QUILT - FROM STUDY UNITS TO REGIONAL DEVELOPMENT

### Abstract

This article gives a concrete example of implementing the Learning by Developing (LbD) pedagogic model in project work. The article is based on experiences at Laurea University of Applied Sciences' Lohja campus, in a project funded by the European Regional Development Fund (ERDF), Pumppu, developing the well-being services of the western Uusimaa region. Through student input, it has been possible to proceed on several paths with improving the well-being of the region and its residents as the main goal. In this article, the work done in the project and the process, roles and tools behind the project are described. The project is seen as a patchwork quilt with student assignments as the patches, and the project coordination as the thread sewing the patches together to form a quilt that is designed for the region, based on the identified needs of its actors and its residents today and in the future.

**Key words:** Involvement, promotion of well-being, fragmental reality, network, research and development

### Introduction

The future is not what it used to be. New approaches are needed to cover the wide range of alternative futures that are possible, probable or even desirable. With foresight, the future alternatives are mapped from different actor perspectives, utilising an interdisciplinary approach. The interdisciplinary approach requires dealing open mindedly with different paradigms stemming from different scientific backgrounds. We cannot follow only one theoretical view. Instead, a dynamic combination of perspectives is needed to form a holistic approach to the future.

In a network-based world, top-down approaches don't work alone; grass-root-level activities are needed as well. This means a combination of theory and practice, i.e. on one hand, the hypotheses will be formed on the basis of existing knowledge and, on the other hand, the practical experiments and piloting will continually produce new knowledge and experience. Interaction between these two approaches will produce the best possible outcomes.

In the Learning by Developing pedagogic model (LbD), at Laurea University of Applied Sciences (Laurea UAS), the research, development and innovation (R&D&I) work and regional development are intertwined with the education function of the UAS. In the Learning by Developing

pedagogic model, the goal is to bring about real changes in the world and new habits of action (Taatala & Raij 2012). Combining theoretical and practical knowledge (Nonaka & Takeuchi 1995) in the university of applied science's projects mean that we have knowledge in practice, of practice and for practice, as describing and explaining forms of knowledge and as generating new innovations. In the LbD model, all these knowledge types are used. (Raij 2007, 2013.)

The LbD model is put into practice through project work in which the students work as part of the project group. As the R&D&I, regional development and education functions are intertwined, the project may be viewed from different perspectives depending on the function. From the perspective of education, the focus is on pedagogy and the learning that may happen in the project. From the R&D&I perspective, the focus is on framework building and applying appropriate theories and methods to reach the targeted outcomes. From the regional development perspective, the focus is on implementing the work so as to bring about real changes in the region.

The use of the LbD model emphasises the need for an interdisciplinary perspective in project work. Pedagogic theories, theories of specific scientific fields and theories of implementation do not work alone but are all needed, with the emphasis depending on the situation. In this paper, we present the work done in the project Pumppu. In the project, we have applied the constructivists approach as the uniting framework in the project work, which is interdisciplinary by nature.

In the constructivist research approach, research is based on problem solving through new constructs, such as models, plans and organisations and their assessment in practice. According to Kasanen et al. (1993), the necessary elements of the constructive approach to research are practical relevance and theory connection, producing theoretical contribution and practical functioning. In Figure 1, the project work is described following the constructivist research paradigm. In addition, in the UAS context following the LbD model, we have as an integrated part also the curriculum and skill of the students and the project team, also producing new competences.

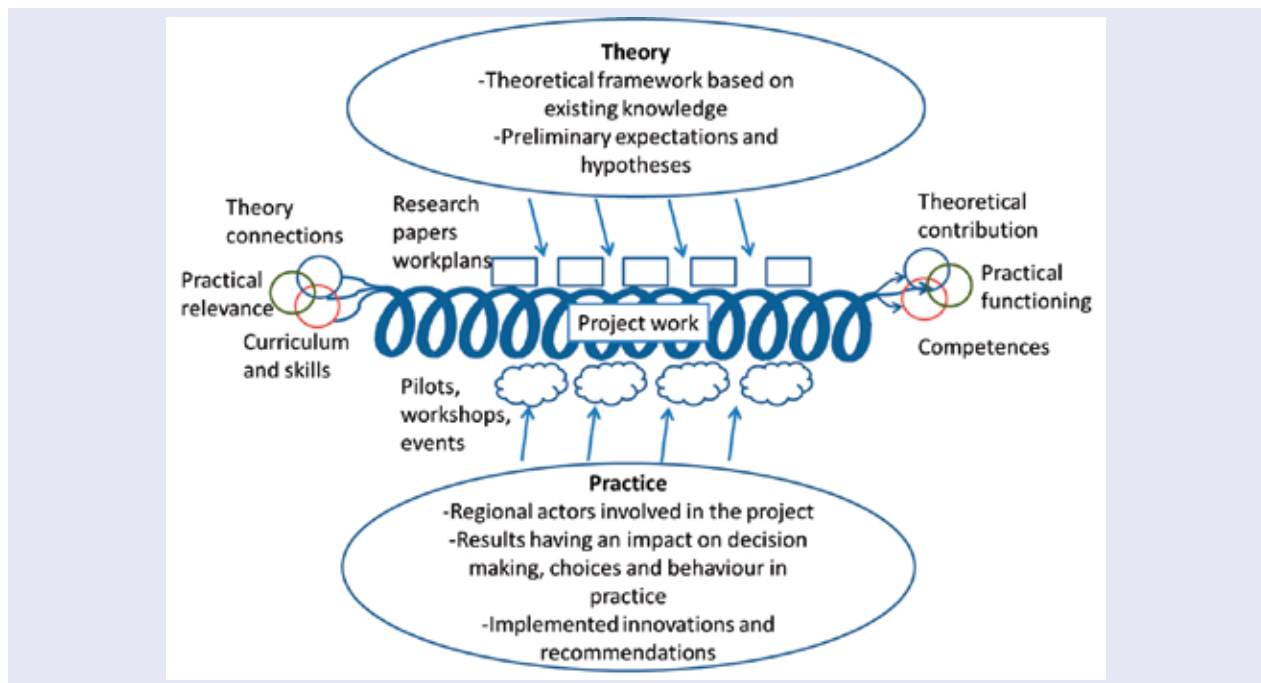


Figure 1. Project work combining theory and practice in the Pumppu project.

From the perspective of learning theories, the LbD model is based on pragmatism, emphasising the role of action and the formation of new habits. As opposed to a constructivist approach to learning, the emphasis is not on the conscious concentration on learning in itself. (Kivinen and Ristelä 2003.) In our application of the LbD model, students work according to their assignment in real-life projects, in

practical settings with the focus being on the task at hand. However, after the assignment, it is important to reflect and evaluate the results, also from the point of view of the learning results and new competences that have been acquired. In our experience, in the beginning of an assignment, students are sometimes reluctant as they do not recognise the benefits of the assignment for educational purposes.

Afterwards, even the most reluctant ones often acknowledge the learning and competences that they have gained through project work.

The target of this article is to describe how R&D&I work and regional development work based on a multi-actor perspective is organised as a continuum following the LbD pedagogic model. The European Regional Development Fund (ERDF) funded the Pumpppu project (5/2011-5/2014), and especially the subproject of Laurea UAS in the Lohja Campus is taken as an example of the LbD model in practice. Pumpppu is aiming at developing well-being services in four regions in southern Finland in a citizen-centric manner, taking advantage of the resources and know-how of all the actors in the region, whether from the public, the private or the third sector.

In the traditional World Health Organization (1948) definition, health “is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.” From a salutogenic perspective, health can be seen as a continuum, where improvement and deterioration are always possible. Health, as a holistic concept, requires that the person is seen in its entity, not just as the carrier of a disease or a certain risk profile. (Antonovsky 1996.) Therefore, in the Pumpppu subproject, we have chosen to widen our perspective from health promotion to the promotion of well-being; from health services to well-being services. In the long run, this will move the focus from reactive to proactive approaches.

Wellbeing is a diverse concept with multiple meanings depending on the context. Based on extensive empirical analysis, Rath and Hartner (2010) define well-being as consisting of five elements. Besides actual physical health, well-being is about how you occupy your time, what kind of social relations you have, what your financial aspects are and what kind of engagement you have in your community. When considering well-being in quite a broad sense, well-being services also need to be broadly defined, including e.g. culture, tourism and other services bringing about positive effects in everyday life. With a multiactor perspective in the project, the concept of a service itself is also broadly defined, taking into account all kinds of activities organised by different actors, including e.g. the activities of local associations. In accordance with the prosumer (Ritzer et al., 2012) and co-production (Pestoff, 2011) concepts, the service users themselves can also be taking part in organising services for themselves as well as others.

In the Pumpppu subproject of Laurea UAS, in the western Uusimaa region, new services have been designed and piloted in cooperation between the regional actors and local

residents and the staff and the students of Laurea UAS, producing also new knowledge on service structures in the region. This work and the process, roles and tools behind it are described in this article.

## The framework for project work

According to the Finnish law (2003/351, 4§), there are three basic tasks for the universities of applied sciences (UAS): education, regional development and research & development & innovation (R&D&I) work. It means that the UASs are in many different ways an important part of the regional ecosystem for general well-being and for a better future.

Actions today will create the future in the long run: educating skillful people, doing regional development enhancing sustainability and welfare and creating R&D innovations and new business opportunities. Futures research is a multidisciplinary approach, which combines objective and intuitive information towards visionary knowledge as a basis for alternative future paths (Meristö et al. 2012). From the educational viewpoint, this means a keen collaboration within the whole ecosystem in the region. Pedagogically, the learning by development approach combines all these aspects in the same formula, the LbD.

The Learning by Developing (LbD) pedagogic model has been developed in Laurea UAS. Raji (2013, 2007, 2003, 2000) has written that the centre of the LbD model is the development project that is genuinely rooted in working life and requires collaboration. The authentic partnerships between lecturers, students, working life partners and clients as end users are the first key elements of the LbD model. The second key element is a project as an experiencing, creative and research-oriented learning environment. In the project, progress is made through identified stages, and the outcome is learning in individuals that can be seen as new ways of action, leading to personal professional growth. An important aspect is also learning in a community. From the point of view of regional development, the outcome is the production of new knowledge in the forms of new products, services, processes, working models and working culture.

As in Figure 2, LbD is at the intersection of the three roles of universities of applied sciences. LbD as a framework requires not only an existing ecosystem in the region, but active and participatory members, with a shared vision of the common future. From the regional development and R&D&I part, the network-based model for action will give an opportunity for innovative partnerships and for quick, caring and creative solutions, according to the Laurea Lohja campus's guiding principles (Laurea, n.d.).



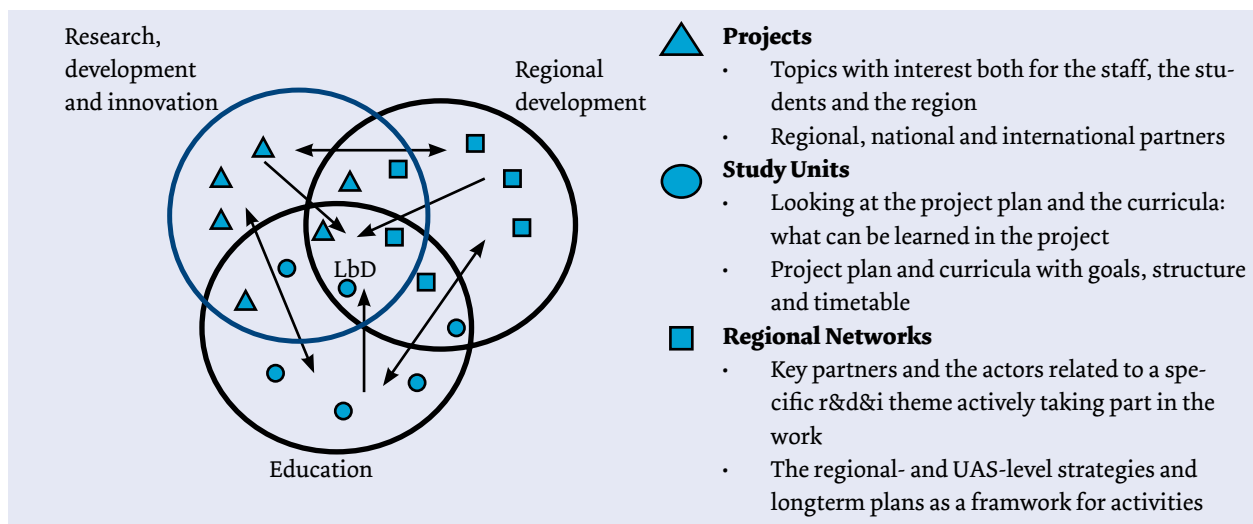


Figure 2. LbD at the intersection of the roles of the university of applied sciences. (Further developed from Partamies et al. 2010)

Although in this paper we are discussing the implementation of the LbD model, we are not concentrating on the LbD model solely as a pedagogic model. Instead, our goal is to show the benefits of the model from the point of view of the project, R&D&I work and the region on the whole. For instance, for the financial actors, LbD will produce better profit by providing a larger amount of resources than normal research and development personnel in the form of students in different R&D&I activities. Also, for the regional actors from different sectors, LbD can serve as a multi-client platform, providing a forum for co-operation in practice and a channel to form a joint mission under selected key themes and goals both nationally and internationally. A fractal structure will give an opportunity to use leverage throughout all the levels; in other words, only a small input at one level can have a big influence on the other levels. With one small project, when having students as a part of the resource pool, the positive impacts and consequences in the region will rapidly grow even more than expected. Wenger (2000) has written that organisations and their communities of practices need to design for themselves social learning systems, and also to participate in broader learning systems, for example a region, a consortium or a UAS. Boundaries are important to learning systems because they connect communities, and they offer learning opportunities for the learner's benefit. A boundary interaction is usually an experience of being exposed to foreign competence.

In spite of all the benefits of the LbD model from the point of view of the R&D&I work and regional development, the pedagogic perspective needs to be considered, too. LbD's third part is education and how the study units' targets and the project's targets are connected so that students can take part in the project and follow the project's timeline. The student's work needs to be seen as a process. The first group of students needs to have results and finish their work before the next group can start their work in the project within their

study unit. The quality management in LbD projects is challenging, because the results need to be useful to the project and the region and at the same time support the student's own learning. It means that students need to be very motivated, and they have to have self discipline to do the work in high quality and in time. Ruohotie (2002) has written that it is important that learners believe in the change they are working for. When learners believe in the change and their capacity to affect their own actions and their environment, they usually get better learning results than learners who do not believe they have control over themselves and their possibilities.

Kallioinen (2007) describes aims for expertise in the future as follows: shared activity, anticipation, readiness for change, multiple skills, continuous learning, self-evaluation and development. The future may present us with new professions such as the nursing engineer, community coordinator or welfare consultant (Santonen et al. 2013). Those features of expertise are a goal for students, and working with the LbD model promotes the students' individual growth towards being a professional, not only for today's needs but for the unpredictable world of tomorrow.

### The process of the project

A project as a platform for education and regional development is a long process, starting very often with an idea that enables the actors from different sectors to formulate common goals and objectives for the work. This phase can last a long time, depending e.g. on how well-functioning the network in the region is, how strong a leader there is for the project and whether there are any suitable financial support instruments available within the existing timeframe. If the links to the regional development work and strategies are tight, the shared vision of the project frame is easier to reach.



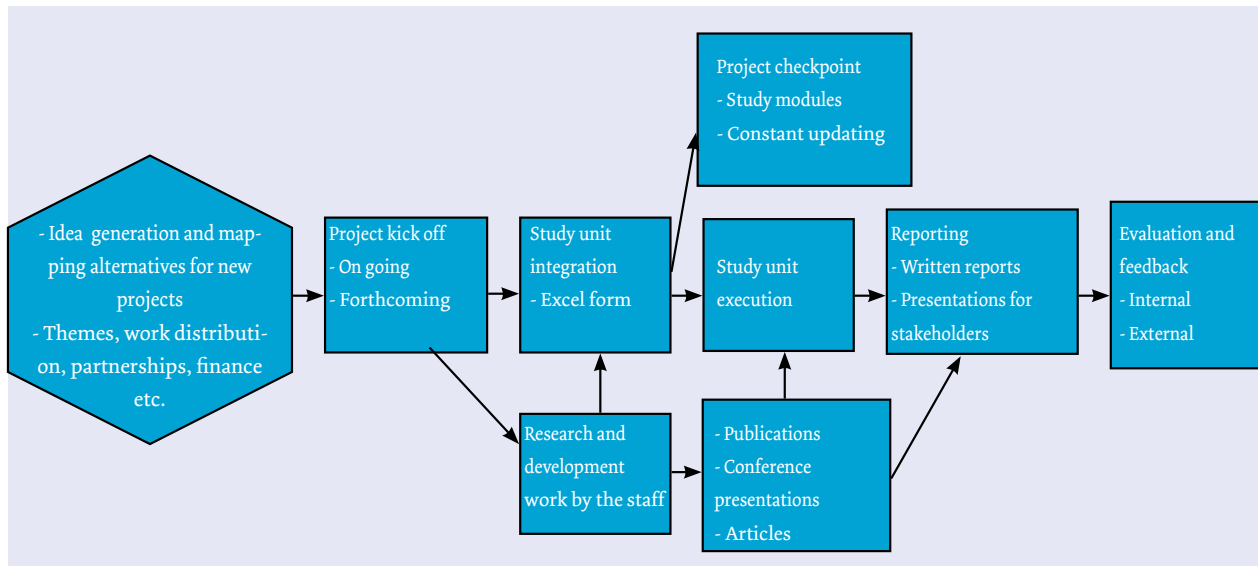


Figure 3. The process of the project.

Figure 3 presents, in a very general form, the overall process of the project, working through the LbD model and combining study units as part of the project work. Starting with the idea generation phase and designing the project implementation plan, the actual study unit integration begins after the concrete project kick off that presents the project plan to the region and offers a chance to make final changes to it. Research work by the staff is needed both prior to the study unit integration phase as well as during it to keep the direction of the project and coordinate the student assignments. After the study units have reached their targets and reported the results, the evaluation phase consists of both internal feedback from the lecturers and research personnel to the students as well as external feedback from the actors of the region in open seminars. After the first round of student assignments, the next round commences, building on the results of the earlier student groups and responding to the feedback from the region.

### Different roles needed in a project

Competences needed to follow a project through are wide and raising by nature. Knowledge and skills, values and attitudes as well as contacts and experiences together form the set of core competences which are necessary in every project (Meristö 1993, Kamensky 2008). A project works as a network, where individual people in certain positions have differing skills and roles. Working through the LbD model requires certain roles in the project, which are described briefly in this chapter and summed up in Table 1.

**The project director**, who is often the principal lecturer in the UAS context, takes the main responsibility of the project and the project range in his/her area of expertise in the

campus. The project director's work as an R&D&I director continues throughout the project. At first, it is important to have discussions with regional, national and international actors and catch the silent signals for future development plans. The project director also needs to have discussions with the teaching staff about their expertise, to have an understanding of the know-how available for development work in the region. She/he also needs an understanding of the curricula that the students on the campus have that can be connected to the project in accordance with the LbD model. The next phase comes with scanning the open or forthcoming funding opportunities and deciding what kind of partnerships can be formed to make an application to the funding organisation. The project director needs to have systematic themes in the R&D&I work, deriving from the needs of the regional partners and citizens in the region, yet in accordance with the themes of programmes offering funding. The themes also need to be meaningful to the students to give them good learning opportunities and to fit the students' curricula. Occasionally, this requires using the larger student pool of the entire Laurea UAS. All the pieces have to match in order to be able to start a successful LbD project. When the project starts, the project director leads the project with the rest of the project group as a team.

The basic roles in the project group are the project coordinator, the researcher, the teacher and the regional developer. **The project coordinator** takes care of the administrative side of the project and monitors e.g. the budget and resources in the project. She/he also coordinates the communications in the project. The project coordinator can either be a project specialist, such as a project planner or a project officer, or can be a lecturer or a team comprising all of these, as in the Pumpu subproject of Laurea UAS. **The researcher**

is responsible for the theoretical background knowledge and framework building in the project and the design of the project. She/he also designs and implements the empirical fieldwork. The main idea in the LbD model is that research is carried out by the lecturers and the students but also the above-mentioned project specialists can be utilised. Also, research is often done in teams. **The teacher** is responsible for the LbD implementation, making sure that both the goals of the project and the learning goals of the students are fulfilled. In the UAS, the teachers are generally senior lecturers or principal lecturers, but the other project group members also occasionally work as teachers.

The teacher has different roles, such as coach, counsellor and facilitator. Being like a coach, the teacher has to know the goals of the project and how to pursue the goals. Being like a counsellor requires looking after the roles of the students and the stakeholders by evaluating and reflecting. Being like a facilitator requires familiarity with the curriculum and the future targets of the project so that he/she can facilitate the long-term targets and get the actors in the region involved. Contact with the stakeholders and students must be kept and they must be motivated to develop and implement the rules of the house in accordance with the best practices defined on the national level. At the same time, he/she has to show new evidence-based perspectives for the development work. (Ora-Hyytiäinen et al. 2010.)

All the project group members can take the position of **the regional developer** when they are doing R&D&I work with local partners. However, in the project group, some of the group members are more attuned to the regional developer mindset than others. The regional developer has close contacts with the actors in the region, being on the nerve of their needs for the project. The actors in the region include private- and public- as well as third-sector actors. The regional developer also has close contacts with the teachers and the researchers. She/he has to know the needs of the learning goals and the project's goal and must see the connection between all three things.

The project group's roles vary in where their focus is. When implementing the LbD model, teachers are looking at what kind of learning can happen in the project, whereas the project coordinator and the researcher are looking at the benefits of the student resources for the project and the regional developer at the benefits for the region. In real life, the project group members have multiple roles and work together in several different teams, and with the students and regional actors, too. This mixture of roles makes project work interesting, but at the same time, a balancing act between different needs and preferences.

Besides the core project group, there are also other important roles in the project. For instance, the library of the UAS is an important partner in the LbD model and has a role as the information enabler. **The information specialist** has a role in the project group as planning the timetable of how to search for evidence-based knowledge. In all LbD projects, the practical and theoretical knowledge interact during the whole project as described earlier in Figure 1. The information specialist and the lecturers are together guiding workshops to search for information from databases. The information specialist guides the best ways to search data from different kinds of databases, and lecturers guide the subject and what kind of information is relevant to the needs of the project. The workshops are for both students and working-life representatives. In the workshops, all are learners; also, the information specialist and the lecturers are learning from others. (Huovila, & Puttonen, 2012; Lahtinen, 2013; Puttonen & Huovila 2011.)

An important support to the project and regional R&D&I work on the whole is **the administrative enabler**, the campus director. It's important that R&D&I work continues in some way, even in those occasions when no funding is available. Because of the LbD-model R&D&I work is possible in a smaller context even without funding. This administrative enabler needs to motivate and get lecturers involved in working by the Learning by Developing model with students and the regional actors. Freedom is also given to principal lecturers and project groups to develop the main research themes further.

Obviously, there are other kinds of **supportive roles** in the project, too, that make the operations of the project possible. For example, ICT-support, financial services, marketing and communication services are important offering know-how and resources to all the projects in the UAS. Also, **the learning environments** on the campus have an important role in the project as well as regional development on the whole. For instance, the Laurea Lohja Health Market has several contacts with regional stakeholders in smaller projects and these contacts have enabled partnerships in bigger projects. The FuturesLab CoFi project environment on the other hand has good networks with other universities and research institutions nationally and internationally, which gives good opportunities to construct strong alliances in different project proposals depending on the subject matter and goals in the region. When the learning environments have a history of answering to the needs of the stakeholders, they are ready to take part in other projects in the future, too. Stakeholders cooperating in projects come from the public sector, the private sector and the third sector in the region. Also, individual residents can take part in project work e.g.

by participating in the seminars and workshops or by taking part in surveys and interviews.

The LbD model inspires and encourages as well as binds everyone as **a learner** and obligates every member of the university of applied science's staff, students and partners to work together through joint efforts, to gain new competences and participate in developing the region that is in a continuous flux of change (Raij & Niinistö-Sivuranta 2012). Although the students work in the project as researchers, their main role is that of a learner. Students achieve professional growth and personal development in real work environments by putting theoretical knowledge into practice, developing skills and abilities involving a critical understanding. Bachelor students in the UAS have to achieve the EQF (European Qualification Framework) level 6 in their studies. (European Commission 2008.) The goal of the LbD model is to enable achieving this level. The students improve their co-operative skills by working with regional actors, the citizens, the personnel and other students at different levels and in different degree programmes in a context of a real

working-life development assignment. Learning models are a part of the large unity.

As mentioned, it is important to have **partners** working together for a shared vision in the project. Local actors from the public, the private and the third sector all have differing viewpoints on the issue at hand, and bringing the actors together is important in designing new services. The regional actors need to put resources into the project; they need to participate in the workshops and events and give feedback on the student assignments. Also, cooperation with other projects and R&D actors is fruitful. However, the most important actor in service development is **the citizen**, the resident of the region as the end user. The end user is considered one of the main authentic partnership groups of LbD (Raij 2007, 2013). In Finland, the residents of municipalities have the right to take part in the planning of their well-being and their own care (Finnish Law, Act 1992/0785; Finnish Law, Act 2010/1326; Finnish Law, Act 2012/980). With citizen participation it, is possible to answer to user needs and find ways to motivate healthier lifestyles and try to improve the well-being of the region.

Table 1. Roles, tasks and examples of positions in the Pumppu project at Laurea UAS.

<b>Roles in Project</b>	<b>Tasks in Project</b>	<b>Examples of Positions in the Pumppu subproject of Laurea UAS</b>
The project director	Turning regional R&D&I needs into project proposals, finding partners and funding opportunities, networking and communications	The principal lecturer
The project coordinator	Project planning and administration, communication, materials and media relations	The project planner, the project officer, the lecturer
The researcher	Framework building and project planning, theoretical and empirical knowledge generation, dissemination and publications. Completing R&D&I assignments for the project and the regional actors.	The project officer, the principal lecturer, the lecturer the student
The teacher	LbD implementation and the pedagogic approach to the project by connecting project and regional targets to the curriculum's study units	The lecturer, the principal lecturer, the project officer, the student, the information specialist
The regional developer	Improving the well-being, the competences and the competitiveness of the region, networking and having a dialogue in the region	The lecturer, the principal lecturer, the project officer, the student, the information specialist
The information enabler	Information retrieval Teaching how to search for information	The information specialist, the lecturer
The administrative enabler	Managing resources and facilitating LbD implementation	The manager of the campus, the development manager
Supportive roles	ICT-support, financial services, marketing and communication services, legal services	The IT specialist, the project accountant, the service coordinator, the legal counsel
The learner	Professional development	The student, the lecturer, partners, citizens
The partners	Enabling R&D&I assignments and participating in them	Public and private service providers, associations
The citizen	Participating in the R&D&I assignments	Residents, patients, association members

## The Pumppu project in Laurea UAS

Pumppu is a multiregional project funded by the ERDF (5/2011 - 5/2014), focusing on developing well-being services in a citizen-centric manner, strengthening the cooperation of different actors in four regions in southern Finland. In the subproject of the Laurea Lohja campus, the focus is on designing new services to support well-being throughout the life span in a proactive, health-promotive way and preventing

marginalisation in society in the western Uusimaa region. The subproject operates on two levels: by describing and developing the service paths of the citizens to reach a seamless services structure and by piloting services and activities in cooperation with other actors in the region. The goal is to offer easily accessible services to different user groups in their everyday settings that support actively taking charge of their own well-being.

There are three case groups in the project. The case groups are heart and diabetes patients, the youth and the unemployed facing marginalisation in society and families with disabled children or youth. A fourth entity in the project is the operational environment of the western Uusimaa region, which forms the scene where the actors and the citizens in the case groups live and work.

The framework for the development of the service paths is described in Figure 4. The idea is that the service paths need to be holistic, combining the health and well-being promotive perspective to the actual care pathway of a specific condition, taking advantage of all the actors in the region and the relatives and family members of the individual, too. Besides actual treatment steps, other elements having an effect

on the motivation to take care of oneself and the feeling of empowerment in the care process are also seen as crucial, i.e. having a chance to participate in one's care, having support and information available when needed, with seamlessness and easily accessible services available regardless of the care provider and fostering an environment of positive attitudes with knowledgeable personnel and actors in the pathway. With a focus on well-being, the pool of actors needed in the pathway increases. With different case groups, the pathway model translates into different kinds of actual paths, with different actors and focuses. For instance, in the path for families with disabled children and youth, the first steps are rehabilitative steps, where as in the path for heart patients, rehabilitation is at the end of the path.

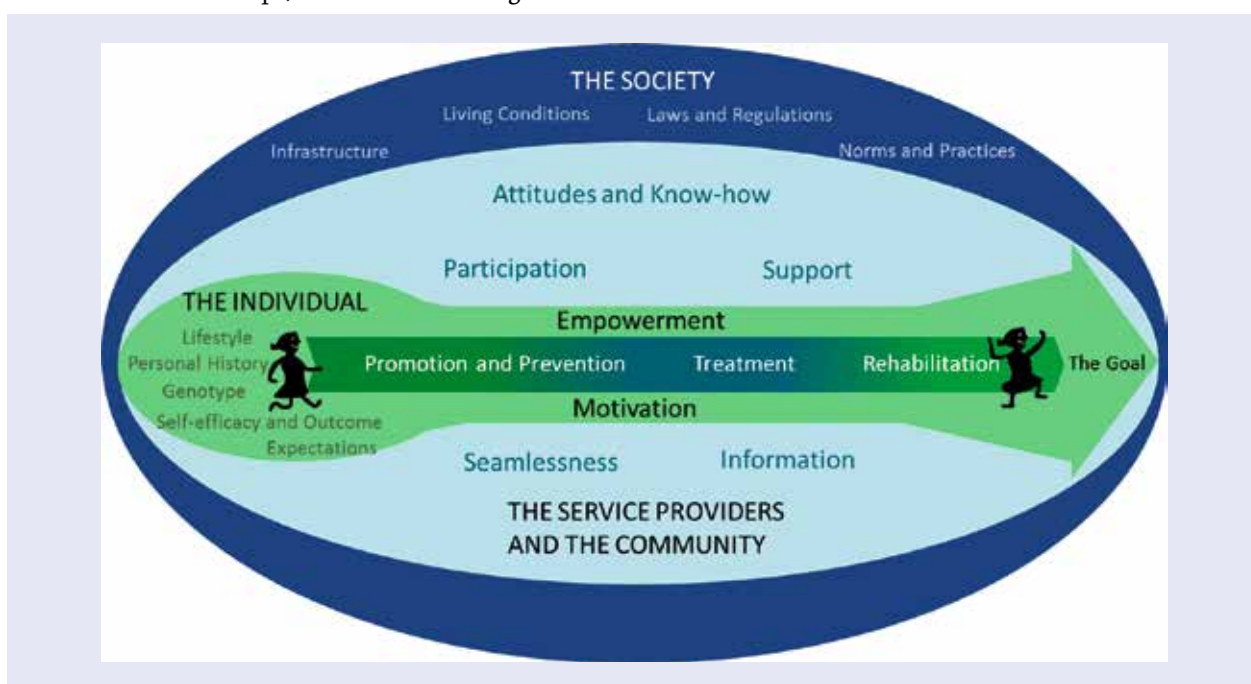


Figure 4. The personal well-being pathway model (developed further from Tuohimaa et al. 2012)

The students of Laurea Lohja have participated in the project, both in designing the service paths and in piloting the services. The student input has enabled a much wider examination of the subject matter than would have been possible solely on project resources. It is like having variations on a theme: examining an issue from various angles and coming up with multiple solutions. We have had a large variety of background information at our disposal, gathered from different user groups to have a vivid picture of user needs. We have had ample background information and benchmarking information on different solutions already in use. We have been able to define the roles of a number of different service providers in the service process and scrutinise their ways of cooperating with each other. And finally, we have had the possibility to carry out many pilots, events and activities

with a number of different partners in different settings. With giving the students space for creativity and a feeling of ownership of their assignment, the end results have often been much more ambitious than expected.

### Tools and methods of operation in the project

The bachelor students' curriculum at the UAS consists of different themes with both theoretical and practical studies. The degree consists of 210 credits. Single study units vary in their size, from 5 to 15 credits. Thesis work is required to graduate, with 15 credits. (Laurea 2013.) Methods of learning are e.g. labs, workshops, simulations, project learning, group working, e-learning, and practical training.

One of the basic ways of using LbD in practice is to integrate a study unit into a project. As our starting point in the design of the Pumpppu subproject, we had a general idea of the project's goals and the project plan for reaching the goals. The idea in the project was to divide the research into small pieces that would be fit for student assignments. The project would then be based on a cumulative process of student assignments with the later ones founded on the previous ones. The project itself continued the work done in an earlier project that had collected an abundance of information on one of the case groups, the heart and diabetes patients, and described their general care pathways (Tuohimaa, Rajalahti & Meristö, 2012).

With the basic outline of the project plan, we started the work of dividing the project into pieces. Some of the assignments were targeted to certain study units and some as individual thesis projects. It's important to seek different kinds of students with differing learning objectives to gain a balance between the learning objectives and the project's objectives. As we knew the students and the study units within which they would be working for our project, we started sketching the detailed working plan. We had certain issues that needed to be covered to reach the goals, and these were the first things that we assigned to the students. However, there were also situations where we had a lecturer ask us for an assignment that would fit a specific study unit. In those situations, we started the variation work: thinking about alternative perspectives and alternative routes to our goals.

For example, in the autumn of 2013, approximately 1500 credits from different study units, theses and practical training periods have been integrated into the Pumpppu subproject in the nursing programme. This is about one-fourth of all the credits completed during the fall by the nursing students. In the first year, project integration is generally the lowest. Also, training periods are often not integrated into projects. Overall, study unit integration has been utilised for many kinds of background information gathering tasks, as well as development and innovation tasks in cooperation with the participating organisations. Throughout the whole subproject, 39 theses have been completed in the project. The theses have elaborated on a large variety of subject matters with many different viewpoints to well-being. The theses include e.g. surveys on local actors' opinions and developing actions in the pathway and descriptions of the seams between organisations in different parts of the pathway. Most of the work has been done by nursing students but business students have also participated in some of the assignments.

### **Flexibility in project planning**

The challenge in utilising student projects in a larger R&D&I project is to get the pieces back together. The planning

phase is important to steer the smaller projects in the desired direction. To get the full benefit of student potential, there must be room for creativity, too. With creativity, there is the possibility to get more out of the assignment than expected. However, at the same time, creativity may lead to the end result being something unexpected.

In the Pumpppu subproject, we intentionally kept the project structure flexible so that there would be room for experimentation and finding new routes for the main goal, i.e. to enhance well-being in the region. For instance, as the project started, one of the case groups was heart and diabetes patients. However, as our goal was to focus on the health promotive phase of the service path- we soon realised that we would need to also focus on the healthy citizens, not just the patients. With the feedback from the field being that health promotion should be started as early in life as possible, we generated the framework of life-long well-being, focusing on different age groups. These decisions steered the project towards new routes in reaching the goal of a healthier life and better well-being. Obviously, the primary focus in the case group was on the heart and diabetes patients, but the LbD model made it possible for us to proceed on several paths.

Another thing that moulded the project was the partners that we were able to get involved in the project. Our basic goal was to develop new kinds of services for health promotion and the prevention of marginalisation with combining the know-how and resources of several actors. The services and activities that were piloted were heavily depending on the partners. Besides primary partners, with whom we had close cooperation, the students were able to attract new partners to their assignments, too. With student input, the amount of partners participating in the project was clearly larger than it would have been otherwise. And as we had a multitude of events and seminars to bring the actors in the region together, buzz and interest in the project was easier to bring up.

One challenge in project work comes with the fact that real life does not always go according to plans. All kinds of practical setbacks force plans to change as one goes, which may lead to the end results being something quite different from the original plan. This is why at the end of a study unit it is important to check whether the results fit the project plan. This is especially important when the next study unit is structured to be based on the previous results. There may be the need to make a correction move and get the results needed some other way, or otherwise the next study unit must be constructed all over again. In the case where you get more than you were expecting, you have to make plans for taking advantage of the extra results and it's possible that another path may need to be constructed, developing the idea further. It may be that the project has resulted in a new partner



who is interested in further cooperation. All kinds of changes are possible and, as much as they bring about difficulties in the arrangements, they also bring about new opportunities.

### **Creating forums for collaboration**

Some of the courses of action taken in the project were based on previous good practices that were further developed and taken as standard procedure. For example, organising small seminars where students presented the latest knowledge on certain issues was an activity already in use in Laurea Lohja. These seminars were taken as one method of operation in the subproject, with a common heading of being an information snapshot. In the project, we decided that we would make all the events, where students presented their results, open to public and started marketing the events to local contacts as activities of the local well-being network that Laurea was coordinating. Besides events in the facilities of Laurea, seminars at the actors' work communities have also been arranged, aiming at reaching many employees at the same time. The events gave the well-being network concrete stepping stones on which to construct collaboration. Also, bigger events were organised: two times a year we organised an open well-being forum and, once a year, the official yearly seminar of the Pumppu subproject.

A majority of the seminars held also contained a workshop session or at least an active coffee break with some general theme under discussion, at the same time offering places for networking. Also, targeted workshops were arranged with the partners and other specific actors when they were considered necessary for the students' assignments. The workshops have worked as check points, offering a chance to evaluate the work done so far and where to go next. At the same time, they have offered the students the opportunity to get credit for their work, feedback and the possibility to network with regional actors that may be beneficial in their future career.

### **Reporting - from patches to a quilt**

The flexible structure and lots of variations in the project makes it extremely important that everything is reported and has its place in the project framework. In the Pumppu subproject, we collected information on the study units that were taking part in the project on an excel sheet. The idea was to consider the research and regional development perspectives of the study units, i.e. what were the expected outcomes, who was participating in the assignment and how the results would be presented and what were the connections with other study units. This way, the lecturers would step out of the pedagogic mindset, and the project coordinator would have follow-up information at her disposal as the

amount of participating study units was rising. The idea was that the same sheet would be filled also after the execution of the study unit to assess the changes made and how well the study unit had succeeded.

Many of the study units produced student reports of their outcomes and most work were presented in open seminars to the public. On some occasions, these reports were developed further as actual project reports, either with separate articles written by the students or as assimilated combinations of several student reports with the student names clearly stated in the different sections.

As some of the study units were focusing on concrete development and piloting assignments, lengthy student reports were not always considered the best use of resources in the study unit, where only a distinct amount of credits was on offer. For instance, in the study units that concentrated on developing new service concepts, the reporting was done on a concept description form. These forms were then given to the next student group who were to implement the concept as small-scale pilots that we called mini-pilots. The piloting phases, on the other hand, were often reported by blog posts and pictures of the events and activities arranged. This way the students' experiences and descriptions of their work were easily available on the internet and made quick communications easy with the public.

The project reports had a function in sewing the assignment-patches into a quilt. The project reporting sketched the bigger picture, structuring the smaller projects together based on the project framework. However, single patches were also reported in more detail in articles, conference papers and presentations. This way, all the details had their value per se. Although, from the point of view of the project, describing the big picture is important, from the point of view of the actors working in the field of health and well-being, it may be that a singular patch is the most interesting.

In fact, we concluded that reporting was not always enough by itself. We also wanted to offer the actors, both in the region and nationally, instructions about how to implement a similar activity by themselves. There were many kinds of activities and events organised and we had much going on but we wanted to guarantee that the activities would spread from our partners to other actors and that events would be replicable, too. It was okay for our students to think for themselves and come up with the materials of the events/activities over and over again, as it was part of their learning process. As they gathered information on certain issues or developed activities, they learned themselves, too. However, we wanted to offer our partners and other interested parties something they could use by themselves. That's why we designed

the well-being backpack family. The first backpack was gathered from a daycare centre where two students had innovated activities for promoting a healthy diet, good social relations and the meaning of sleep for well-being. Besides being a concrete briefcase, the material was also made available on the internet. After the first backpack, another backpack was designed to organise pop-up events for reaching the unemployed in their everyday settings, e.g. the shopping centre. The third backpack is under development of materials for organising events for the diabetics. On the internet, we had a larger audience with presumably more impact than would otherwise be possible. At the same time, we considered that this concept of the backpack family would be something that would outlive the project, guaranteeing the continuity of regional development regardless of the project.

### Lifelong well-being for the heart patient as an example

In the Pumppu subproject of Laurea UAS, well-being is understood as a concept uniting the whole lifespan, from

pregnancy to old age. In the project, the pathways for health promotion, the metabolic syndrome and the coronary disease have been described from the lifespan perspective in a case area consisting of two municipalities with a shared primary health care organisation, the Federation of Municipalities Karviainen. The services of the Federation of Municipalities Karviainen are organised according to the lifespan in three lines: children and youth, working age adults, and the elderly. We have had prior cooperation with the personnel of the Federation of Municipalities Karviainen e.g. in different “easy access” –events as part of their MBO-project. The cooperation continues in the Pumppu project with the same patient group.

In the Proactive Care and prevention project in the Western Uusimaa region (2008-2010), the pathway of the heart patient was described. The path included the phases of prevention and follow-up visits, seeking treatment and emergency care, the care in the hospital, discharge and rehabilitation.

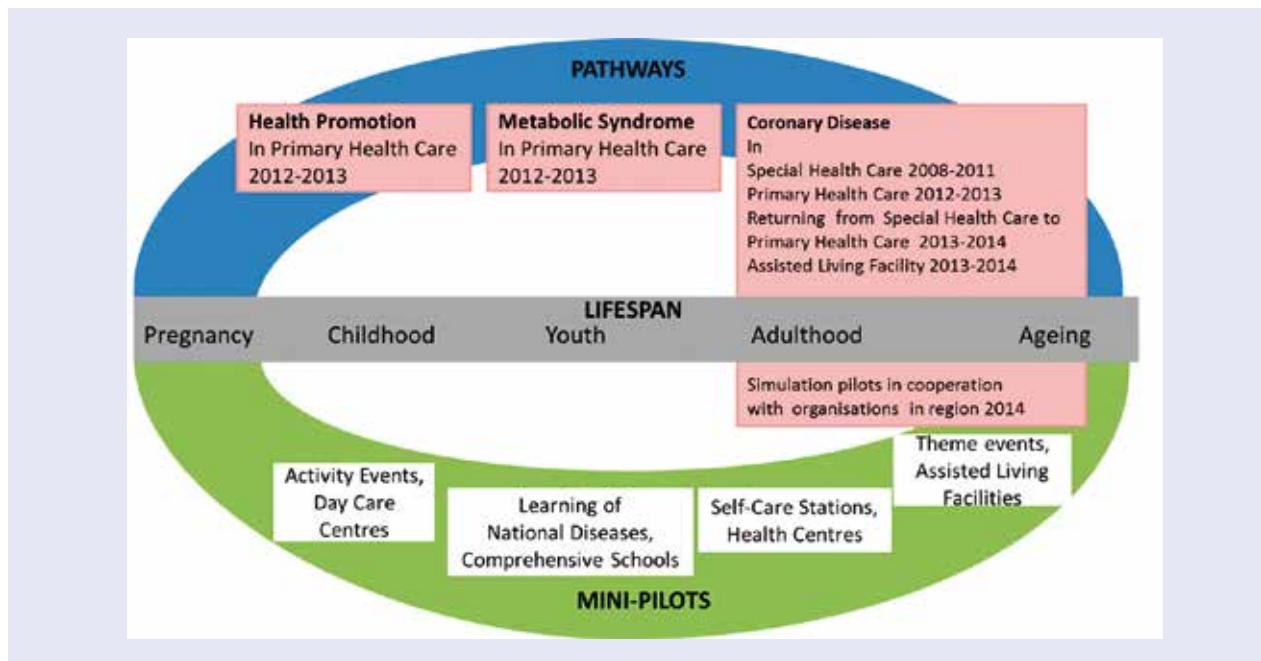


Figure 5. Well-being pathway for heart health in the Western Uusimaa region. (Case Federation of Municipalities Karviainen)

In the Pumppu subproject, we have now continued to develop the pathway further, focusing on primary health care (Figure 5) in cooperation with the Federation of Municipalities Karviainen (2012-2013). There were needs for three pathway descriptions; health promotion, metabolic syndrome and coronary disease. These pathways were described by interviews and workshops to the personnel in every lifespan line of the organisation. The pathways were described

including actors from the public, the private and the third sector and the content of counselling from every period in the lifespan. In the Pumppu subproject, the focus has been on health promotion and rehabilitation services. For instance, in the discharge phase, cooperation between special health care and primary health care has been developed in an organisational perspective. A thesis work is underway with interviews for the personnel of both organisations

and workgroup meetings (2013-2014). Another thesis will be describing the opinions and experiences of two ageing persons, which have the coronary disease and who live in an assisted living facility (2013-2014).

To support the pathways, several small pilots, so called mini-pilots, have been designed and implemented in different age groups, e.g. health promoting activities for children and their families about sleep and healthy nutrition, functional learning sessions about national diseases in comprehensive schools and events with different focuses, e.g. social relations and safety for the elderly living in an assisted living facility. The themes of the minipilots have arisen in different ways. Health promotion activities for the children and their families were a “wild innovation testing” with one target being to find a way to have an impact on the parents and the whole family via the children. The functional learning sessions about national diseases in comprehensive schools, on the other hand, were based on the findings of the Pro-active Care project.

One of the mini-pilots originated from the needs of the organisation. The mini-pilot was designing and implementing Self-Care Stations to the two Health Centres of the Federation of Municipalities Karviainen. Students from six study units took part in this mini-pilot, and it included both nurse students and business economics students from Laurea Lohja. An idea-generation workshop was organised, with the

staff of the Health Centre and local heart association participating. The idea in this process was to get the public, the private and the third sector actors together to plan health services, but the main purpose was to give people a place to take an active role in taking care of their own health and take responsibility e.g. by measuring their blood pressure and weight with the help of the personnel and advise nearby when necessary. This mini-pilot is seen as one way to support people's self-care.

### Project work and the roles of the University of Applied Sciences

The original framework of the LbD model (Raij 2007, 2013) is focusing on the pedagogical perspective, having the lecturers and the students in the main role with the research project and regional development primarily as a platform for educational purposes. Our experiences in the Pumpppu project have shown that the balance between the R&D&I, regional development and the education function is the key success factor for the continuous application of the LbD model in a fruitful win-win-win solution for all the actors in the region. Universities of applied sciences have responsibilities for all three sectors, not only for education, although it is the main purpose of the whole institutional existence. The different roles in the project team guarantee that all three functions are taken into consideration throughout the project. Also, the interests of the funders must be taken into account.

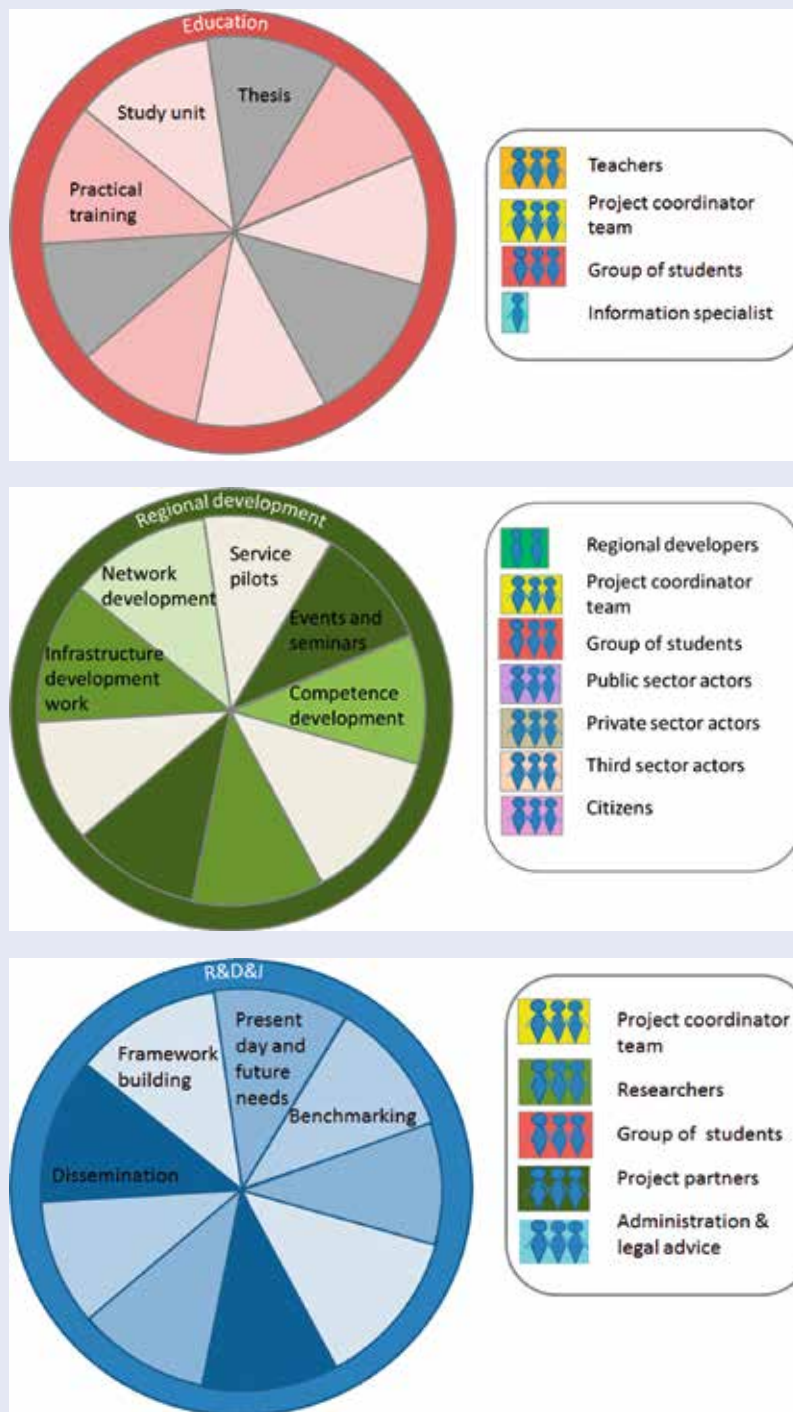


Figure 6. The project structure and roles in the Pumppu subproject from the perspectives of the three functions of the UAS.

In Figure 6, we have developed the idea further to describe the different roles from the perspectives of R&D&I and regional development work, too.

In the implementation of the LbD model in the Pumppu subproject at Laurea UAS, these three spheres are integrated into one overlapping project structure as in Figure 7.

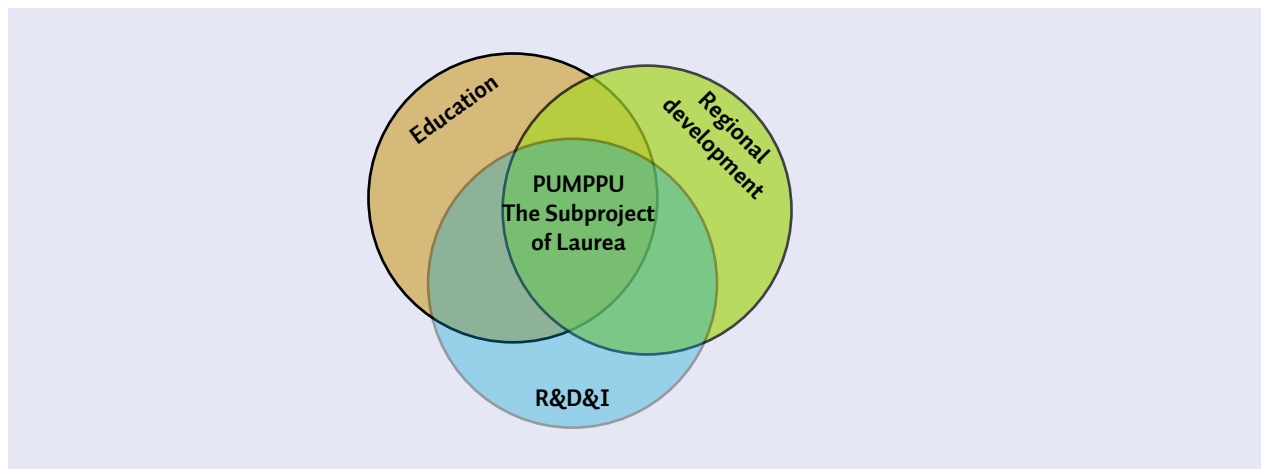


Figure 7. The Pumppu subproject at the intersection of the education, regional development and R&D&I work.

The different emphases in the three spheres are united, and the actual project group emerges with the staff and the students of the UAS in the specific roles that they have in the assignment, as well as the specific partners. This way, the project group can take all the different perspectives into account. In the ideal situation, the three spheres overlap entirely. In practice, however, not all study units are entirely integrated into the project, all assignments have not been

taken by the students, and not all regional development tasks have been coupled into bigger projects. For example, practical training periods are an underused potential for development tasks.

Keeping a balance between the three spheres is a juggling act and does not always succeed. Possible imbalances are described in Figure 8, as a few examples.

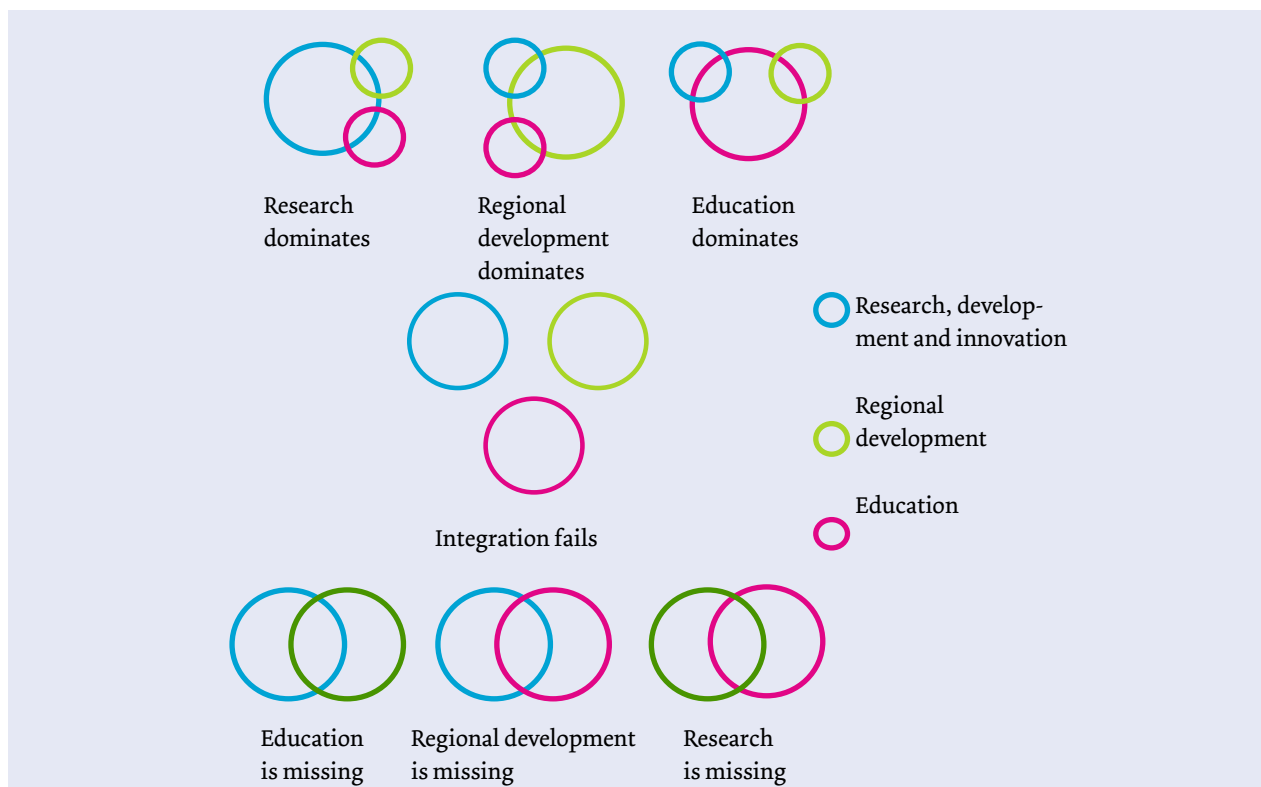


Figure 8. Examples of possible imbalances of the education, R&D&I and regional development functions in project work.



It may be that the role of the education function increases too much. Sometimes, study unit integration fails, and the regional development work is done separately. If the research agenda comes from the outside, for example being part of a larger project, it may be that the research sphere widens on the expense of the other spheres. It is also possible that, within the project, some assignments are focusing on some specific sphere and the balance comes from combining the different assignments together. Some of the study units need to have educational parts which are not integrated into the project as the curricula's targets may be incompatible with the targets of the project. Also, for example, thesis processes can be research- (van der Kooij, 2013) or development-work based (Tarilo & Vikström, 2013). We need different processes in the subprojects, and the project coordinator team is responsible for maintaining the balance between the spheres. The project structure can be seen as a fractal, where the parts of the project can be imbalanced case by case, as described in Figure 8, as long as the project as a whole is in balance with all the three dimensions, as described in Figure 7.

## Discussion

The pedagogy, regional development, and research and development tasks of universities of applied sciences (2003/351, 4§) are integrated in the Learning by Developing pedagogic model. In the Pumppu subproject of Laurea UAS, the LbD model has enabled a wide range of activities that have benefitted the region and its residents. For us and the entire project group, the project has been an opportunity for learning, too. We have had to consider our roles and the processes within the project from new perspectives. Balancing between the needs of the region and the learning objectives of the students requires consideration to function well, and it benefits from a smooth process.

As we have developed the services in the region towards seamlessness, we have realised that the project's processes also need to be as seamless as possible. The cooperation of the project group is crucial in the success of the project. We all have our own perspective to the project, and only working seamlessly together can we guarantee that all the perspectives are combined effectively for the benefit of the region, the project and the students. With a well-functioning process the work continues from one project to the next, working with established as well as new partners for shared goals.

Based on the experiences of the Pumppu project, we believe that future project work and the integration of all the three perspectives will be easier from the start. For instance, the combination of the project goals and the learning goals of the students may be integrated from earlier on. Also the utilisation of the students' study module-based reflection in

evaluating the project and its further orientation might be used in a more systematic way. In the end, the level of expertise that the students can master within a project benefits the region, as the students graduate and start their working careers in the region. Working in projects, the students internalise the developer attitude for their future career. Working with the regional partners as well as national project partners and their students forming interdisciplinary project teams give ample possibilities for professional growth. Practical training periods and project assignments together give a versatile picture of the region and its actors. The benefits of cooperation with public, private and third sector actors become apparent. In real-life R&D&I activities the importance of the end user perspective is also highlighted.

From the R&D&I perspective, a project and its results have to be presented to scientific networks and the research community at the national and international level. The best way to do this is to have researchers in the project group with ambitions of their own, too. An essential part of the scientific work in the constructivist paradigm is open discussion and the dissemination of results in conferences and journals to get feedback and critique. In the Pumppu subproject, national and international communities of e.g. innovation research, nursing, ehealth, education, health promotion and sociology have been the arenas for the constructive processes.

From the regional perspective, a single project may have far-reaching impacts if the project results are implemented in the operations of the participating organisations. However, at the same time, new needs for further development tasks emerge, both from the organisations' as well as the residents' point of view. Therefore, projects need to be seen as a chain of overlapping activities bringing about positive effects to the region, both in the short as well as in the long run. Projects can be seen as tools for focusing on future-oriented issues not yet considered important in operative work, as new perspectives in the strategy work in the region.

Overall, implementing the LbD model in project work has proven to be a tremendous asset in the Pumppu subproject, making a multitude of variations possible in the theme of promoting health and well-being. However, a lot of work is needed to transform the patches generated by the study units into the actual quilt visioned in the project plan. The cooperation of the project group with regional actors and residents is needed to guarantee that the end results of the project are as planned and, at the same time, taking into account changes and factors not anticipated in the design phase of the project. A proactive perspective towards the future is needed, with a shared vision of the future and agility and flexibility in finding the right paths towards it. ■



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## ‘EXPERIENCING’ WITHIN A DEVELOPMENT PROJECT FOR SUBSTANCE ABUSE REHABILITATION

### Abstract

In Raij’s (2007; 2013) model, Learning by Developing is related to five main concepts: authenticity, partnership, experiencing, inquiry acting, and creativeness. This paper focuses on the concept of experiencing. The study analyses how the actual experience is expressed in the context of a development project of substance abuse rehabilitation. The main question is: How do a student’s and a teacher’s experiences differ from each other, and what do they have in common? The study is based on two diary-like texts. According to the analysis, there was a wide variety of experiences which related to the project’s activities, and they support learning in many ways. The results show that student and teacher experiences are similar to each other in many ways. For example, the confusion and uncertainty associated with the project activities are common experiences. In addition, also from the teacher’s point of view, the project activities offer a good opportunity for personal learning.

**Key words:** experiential learning, learning by developing, substance abuse rehabilitation

### Introduction

**Learning by Developing** is a pedagogical and operational model that includes many dimensions. Katariina Raij (2007) has analysed the process of Learning by Developing and found five concepts related to the different stages of the process: authenticity, partnership, **experiencing**, inquiry acting, and creativeness. This article focuses on one of these, namely experiencing. We describe how the actual experience is expressed in the context of a development project of substance abuse rehabilitation.

The concept of experience is complex and can be approached from a variety of theoretical perspectives. According to Pentti Rauhala (2006), pragmatism is one of the key starting

points of the Learning by Developing model. Vesa-Pekka Taatila and Katariina Raij (2011) have shown that a pragmatic approach to pedagogy, as well as the LbD action model, is a useful basis of philosophy of higher education pedagogy. Pragmatism stresses the connection between experience and concrete action.

We can assume that development projects are experiential processes, not only for students but also for teachers. In this article, we look at **experiencing** from the perspectives of both a student and a teacher. By way of methodology, a narrative case study approach is adopted that explores the process of **experiencing** through two individual stories. We look at a development project in substance abuse rehabilitation and in particular its start-up. The POKE project (translated title:

Learning and Development Centre of Substance Abuse Treatment - Living Lab Project) is a project related to the development of alcohol and drug rehabilitation and has been implemented in one substance abuse unit (Järvenpää Addiction Hospital, A-Clinic Foundation) in the Helsinki Metropolitan area. The unit offers both pharmacological treatment and a therapeutic community for clients with substance abuse or any other addiction. In addition, there is a family rehabilitation department and a department of detoxification. The project looks to develop a new kind of **living lab** environment for substance abuse.

### The POKE project as a learning environment

The objective of the project relates firstly to the construction of a learning environment, in which the aim is to develop competence around the area of substance abuse treatment. The project will be piloted and evaluated by means of a variety of technological applications related to substance abuse. Co-operation with companies in the wellness sector also plays an important role. The main themes of the project are the safety of the hospital environment, the development of a comprehensive alcohol and drug rehabilitation programme, as well as the provision of peer support, networks and co-operation. In the administrative sense, Laurea University of Applied Sciences is the project coordinator and the other actors (Järvenpää Addiction Hospital, The Church Training College, and companies of the CIDE Cluster Finland) are partners.

Students in different fields (social services, health care, correctional services, beauty care and business management) have been involved in the project, and their roles have been varied. Within the project, students prepared and implemented functional groups for substance abuse patients, particularly with regard to learning everyday life skills. A Family Rehabilitation unit has been implemented, using functional groups, which aim to support parents dealing with substance abuse problems. Students have also compiled different reports relating to functional rehabilitation, substance abuse of clients subject to criminal sanction, as well as implementing technological pilots. Furthermore, business management students have developed a marketing plan for Järvenpää Addiction Hospital. Thus, the students have been both actors and researchers in the project, with novice and graduating students taking part in a variety of roles.

This paper describes the preparation and start-up phase of the project. At this point, workshops, which were developed in the manner of service chains and networks for substance abuse treatment, played a key role. The University's students and teachers participated in these workshops as equal partners with other actors. The preparation and start-up period

also included the preparation of a poster for an international conference. The students participated in preparation of the poster, although for practical reasons, it was presented by teachers.

### Experiences in a development project for substance abuse

Working and acting in a development project for substance abuse is in an experiential process in many ways. First of all, the experience can be examined from the perspective of learning. For example, Kolb's (1984) theory of experiential learning argues that personal experience is the starting point for learning, but that learning also requires reflection on observations, conceptualisation, and engagement with experimental activities. The different stages together form a circle of learning. Traditional university pedagogy stressed cognitive processes and learning of knowledge, but recently there has been plenty of discussion about experiential learning in higher education (eg. Kolb & Kolb, 2005; Juriza et al., 2011; Ayob et al., 2011).

Secondly, the experience may be related to the development process itself. From this perspective, the **experiencing** is associated with the action occurring in a situation and may include a number of uncertainties that prevent the realisation of the plan. Such experiences and reflection of them are particularly characterised by action science and critical pragmatism (eg. Schön, 1983; Argyris, 1995; Forester, 2013), in which the direction and goals of activities are not fully known in advance. According to Juha Varila (2007), emotional experiences in development activities are multi-level and can be approached from different perspectives. It is possible to emphasise the evolutionary basis or cultural nature of emotional experiences, or the connection between experiences and beliefs.

The third aspect is related to the nature of social work and substance abuse treatment as a professional activity. In the discussion of social work, the meaning of feelings has been understood in many ways. Feelings have been seen as a distracting element in social work. A professional social worker needs to be aware of one's own feelings and that is possible by reflective action. (Karvinen-Niinikoski, 2010, 258 – 259; Gambrell, 2013, 334.) Feelings have been considered as something that can mislead ethical action (Arki, arvot, elämä, etiikka. Sosiaalialan ammattilaisen eettiset ohjeet, 2012, 6) or endanger workers' coping in their work (Juhila, 2006, 188 – 189). On the other hand, social work itself can be understood as "emotional work", where the worker's personal feelings play a central role (Tuomi, 1992). In addition, professional expertise in the area of substance abuse is based, at least

in part, on professional experience (eg. Lehto, 1991). In this sense, experience and emotion are important elements in the professional conduct of the work itself, and not just concepts that are related to learning and development. Without the experiential dimension, professional substance abuse treatment is not possible.

The fourth perspective relates to the student's own personal experiences. In Finnish society in particular, alcohol plays an important role. Thus, the reflection of one's own substance abuse-related experiences and views are key elements in the transition towards becoming an expert in the field of substance abuse rehabilitation (cf. Lindqvist, 2006).

In a theoretical sense, this **Learning by Developing** is based on Dewey's pragmatism. According to Dewey, experience is a two-way process. It is an event where a person is an object and reactor to a situation, and also an active participant. Dewey emphasises the importance of continuity: the experience should not be understood as simply a separate event, but always in relation to past and future experiences. People have well-established habits based on previous experiences, and these determine how a person responds to a particular event. New experiences, however, may also change these practices, and thus affect the way in which one responds to future events. Therefore, experience is always constructed through the interaction between human perception and reality (external events, other people). (Dewey, 1938/2007.)

Pragmatism and the theory of experiential learning **emphasize** that experience alone is not enough. Human learning and development are based on reflections on experience, and the need for reflective thinking arises, particularly in the case of problematic situations, for example unexpected events, confusion or unpleasant experiences. (Dewey 1938/2007.)

Raij (2007, 23) describes the concept of experiencing as follows: *"Experiencing emphasizes the active and responsible role that each participant must assume for his or her own learning, as well as participation in shared activities and learning. Experiences are gathered and shared. They arise as the process progresses and solutions are found. Shared reflection on experiences and a search for significance promote understanding of the knowledge included in workplace competence and the recognition of new knowledge. The importance of experiencing arises particularly in relation to evaluation and knowledge building."*

According to Raij's (2007) process model of Learning by Developing (LbD), experiencing is associated in a phase which follows those of authenticity and partnership, but occurs before the achievement of inquiry acting and creativeness. These basic concepts of LbD are not independent, but rather are built on each other. In this paper, we assume

that actual experiences have a strong presence from the beginning of a project. An orientation to the phenomenon and an authentic workplace environment can help to build meaningful experiences. In particular, at the beginning of a process, confusion can be a significant factor from the perspective of learning. Co-operation with working-life partners also helps to build experience, and inquiry-based learning (Hakkarainen, Lipponen & Lonka, 2005) is an important starting point for LbD (eg. Fränti & Pirinen, 2005; Rauhala, 2006). The significance of the research orientation is normally highlighted only after a project has been going for a long enough period; however, the beginning phase of the project may also include research-oriented processes, such as the poster presented in the POKE project.

## Research objectives, methods, materials

In this article we assume that the experience includes three main elements. Firstly, it needs an external situation that causes the experience. Secondly, at the subjective level, an experience entails some kind of an affect or a feeling. Thirdly, experience is not an isolated event, but gets its meaning in relation to some previous events. The meaning and effect of experiences can be determined in relation to learning and studying, the development process, professional activity or personal history. In this article, we analyse the experiences of a teacher and a student through these three domains. We ask: *How do student's and teacher's experiences related to the POKE development project differ from each other, and what do they have in common?*

The study is based on two diary-like texts, including a total of 31 pages. The project teacher and student compiled diaries regarding the events and personal experiences which occurred during the early phase of the POKE project. Of course, the sample is limited, and the results can't be generalised. However, the material also displays some general aspects of the importance of experience. Based on individual cases, it is possible to show the existence of phenomenon, but not their frequency.

The experiences were identified through affective expressions and classified as abductive. First, we identified all areas of the text which contained either positive or negative expressions. We then considered where experiences may be influential on the context described. Our starting point was a theoretical pre-understanding formulated on the classification of: experiences related to studies, the project management, substance abuse work and personal history. During the analysis, we found a further four classifications involving experiences related to an authentic working life partnership, the student group, research orientation, and LbD management.

This article is based on reflective writing, where the authors' subjective point of view is present. In this sense, the writing is different from traditional scientific writing, where the aim is a strict separation between the researcher and the research object. In the writing, which reflected the start-up phase of the project, the roles of the authors were seen as being different from each other. Two of the authors participated in the production of the research material (as a student and as a teacher).

## General description about stories

The texts are diary-like and follow chronological order about the start of the project. The lecturer's story starts from December 2012 and the student's story from March 2013. The POKE project was officially launched in September 2013. Both stories end in November 2013.

The common story starts during March 2013, when the teacher introduced the project, which was incorporated into the course "social influence and social ethics". The student signed up for the project and ended up in a group of four students. The teacher instructed the group on how to start. The group soon started to work self-reliantly, keeping in touch with the head of the therapeutic community and the consultant company. The students and teacher went to the addiction welfare unit together to become familiar with their policies.

The process that is described through stories included several workshops, where the addiction welfare unit's employees, representatives of partners, the lecturer and students improved the service chain processes in guidance of consultants. First, "worst case scenario" -stories were told and solved from different points of view in a workshop that used narrative methods. These stories were worked on

during the second workshop, using the means of a drama. The points in the service chain that needed to progress started to become more visible. The last part, or workshops, were divided in two actual workshops that were called modelling workshops. Participants were divided into two different physical places and half of the work was put in the place via video meeting. Modelling workshops were focused on creating models for solving problems of the addiction service chain that concerned patients' transfer from municipal non-institutional care into institutional addictive care (insufficient and incomplete referrals and background information). The outcome of the whole process was introduced in the service chain event in November 2013 in Järvenpää Addiction Hospital.

During the process, a chance opened up to present a poster about the outcome of the project's start in the Second European Conference on Mental Health Nursing, in Turku, at the end of May 2013. Students played an important role in producing the contents and outline of the poster. At the conference, the poster was exhibited by teachers from Laurea. The group of students wrote a report and presented the outcome of their work for their fellow students at the end of the study unit in May.

Both texts from the student and the teacher consist of narration and self-reflection about what happened as well as their experiences. In both stories, the main thought is about self-discussion of one's own role. Both texts are written in story-type form, and they start from reflecting one's own history in terms of the project and end in an assessment of what the whole process gave for the future.

## Analyses

Classes found in the material are collected in Table 1.

Table 1. Classification of observations in the data

Class	Student		Teacher		Teacher
	Positive	Negative	Positive	Negative	
Studying in a project	5	2	8	7	22
Project management	6	11	6	14	37
Addiction treatment rehabilitation	11	2	4	-	17
Personal history	4	2	1	-	7
Partnership	3	-	7	1	11
Student group	1	4	2	-	7
Inquiry acting	2	3	2	2	13
LbD management	-	-	7	7	14
<b>Total</b>	<b>32</b>	<b>24</b>	<b>31</b>	<b>31</b>	<b>128</b>



During the classification of the material, most of the perceptions came to the class of **project management**. These perceptions were mainly negative, and mostly resulted in the ambiguity of the project in the beginning. Practically, this meant, for example, changing of plans, uncertainty about the role of collaborators, difficulty to perceive the organisation of the project, one's own role and uncertainty about expectations. The relation between the project's aims and actions especially presented the thoughts: is the action meaningful for the project's aims?

*The whole process was marked by a perplexing "is this really everything which was expected from us?" The whole group had very unclear views about what we were doing and what kind of impact it would have. Often, I also felt uncertainty on whether I had done enough, even if I had read literacy concerning the treatment of substance abuse even after the narrative workshop. (Student)*

*My role in the working group at the addiction hospital was a little bit unclear for me. They spoke quite concretely about client processes, and occasionally I felt I could as well participate in the development process of the dairy industry, so little I knew about some details. I thought that I would just have to tolerate this inconvenience caused by uncertainty. (Teacher)*

In both material from the student and the teacher arose the difficulty of the language used in project administration.

*There were plenty of strange words in the project plan. (Student)*

*When I opened the attached preliminary project plan, I got a hint that perhaps this is not a case where it's possible to gain experience in client work in the treatment of substance abuse and to encounter substance abuse clients or the working methods. It seemed to be more like a development project, which would be managed mostly by an independent innovation office. I did not understand the title of the project the first time I read it, and I became uncertain of whether I would dare take a risk to recruit students for project work with title I could not even describe in my own words. The project plan was full of words that sounded to me like a typical language of development consultants, such as "agile innovation and development", "value network", "value chain", "renewed", "flexible practices" and "practices in silos". I have little experiences in development processes led by consultants, and the language used during this experience caused great frustration. Should I put this offer aside after all? (Teacher)*

In addition to uncertainty and negative experiences, the project was associated with many positive experiences. These were associated mainly with new and open-minded ways of developing work and faith in uncertain things to work out in the end. Typical for project activity was enthusiasm and

a common feeling of respect, as well as the experience in the meaningfulness in actions.

*I was really enthusiastic about beginning the project, and I could hardly wait to get to work! (Student)*

*The message sent by Sirkka and the day's programme conveyed the impression that our students and our participation are valued, because the day's programme was carefully prepared ... In fact, I was a little worried about whether the majority of the participants would represent the staff of Laurea or the consultant office; so the direct dialogue between students and the addiction hospital would not then be realised. In this case, students could inevitably get an impression that they do not really participate in this development process, but they have organised a separate narrative workshop as "a kindergarten". Fortunately this did not happen. (Teacher)*

The student's and the teacher's experiences with project activities were very similar.

**Studying in the project** was associated with many experiences. These experiences were both positive and negative. The student's experiences were mostly related to clearing up their own impressions, firming their own know-how and enthusiasm that led to facultative studying:

*During the second workshop, my thought and understanding cleared up further. I thought that I have a good starting point to go to the therapeutic community for a practice period. (Student)*

*During the next summer, I continued reading professional literacy. I was thinking about my studies and the first practice period. Unit was strongly on my mind. (Student)*

The student's negative experiences were associated with uncertainty of their own knowledge.

Administrative questions about the study unit were highlighted in the teacher's story: were assignments reasonable and meaningful? Will the project activity be the right amount for study credits? How can the project activity be rationalised to the students? On the other hand, the feeling of pride emerged in the teacher's story when students were successful on assignments that they were given.

*In their turn, the students gave a very excellent presentation, which was based on their own experiences of practice periods. In the presentation, the students expressed their confidence in the development project, and the partners appreciated the opportunity to be involved and expressed their desire to be available for development projects in the future, too. During the presentation, I almost exploded with the pride I felt, and afterwards, our partners praised the skills and maturity of our students. (Teacher)*

In the student's story, the most important source of positive experiences is **addiction treatment rehabilitation** and especially work done with clients. Participating in the POKE project included an expectancy of working with clients. Participation was also combined with respect for the addiction unit's work and highlighting a multidisciplinary way of working. The student's enthusiasm was also related to the meeting of theory and practice in the project activity.

Being part of a multidisciplinary co-operation with addiction welfare workers gave the student a lot of self-confidence and a sense of pride in their own know-how:

*Little by little, the idea of multi-professional began to come true. At the hospital, they really considered the whole person! Many things, just like practicing everyday-life routines, emphasised by Katariina, felt natural when I thought what I had read about the client group. (Student)*

*I felt that I could express my opinions, and I was being heard. Something had really boosted my self-confidence. After the workshop, I was given the feedback that I can perceive a customer's situations in life and also challenges in the service chain very well, even though I was a student. It felt very good that all the work I had done had not gone to waste. (Student)*

In the teacher's story, **LbD management** came up with both positive and negative experiences. Relationship to the superior, working timetables, making agreements with team colleagues and communication in open-office settings arose in the story. Positive experiences were mainly related in the teacher's own possibility to learn in the project activities.

*In addition, I was attracted by the offer to co-operate sent by the addiction hospital, because it seemed to concern not only students, but also me. It would be possible for me to participate in the work in the narrative workshops, and so I could easily learn this development method, which was new for me. Also, because I had talked with my boss about some working-time resources for the POKE project in my work plan, I guess there should be some sort of display of using the resource. So, I decided to examine whether the offer to co-operate could be integrated with the study module. (Teacher)*

Negative expressions were related to different practical issues (for e.g. transportation to the addiction welfare unit) as well as economic factors. The teacher felt that perhaps the organisation strategies that were introduced in development seminars did not meet everyday actions. The material also shows challenges in making schedules and technical school timetables in question. It seems that for a teacher, it is easy to take students who are studying in teacher's own responsive

units, but getting other students involved in the project is much more difficult.

*I received the message at a moment when my own teacher team had exactly one week's time until the study unit Social influence and social ethics would start. I had no other available student groups, whose studies I could integrate with this offer ... This happens all the time; working life development projects rarely coincide with the scheduling of study modules and timetables of student groups. (Teacher)*

**Inquiry acting** appeared as a positive experience especially in the teacher's story. The experience affiliated, for example, with how students were able to write in English effortlessly and succeeded with the making of the poster. For the teacher, the final result also felt very good. By making the poster, the teacher was convinced that something meaningful was being done.

*It was especially remarkable that the student group had produced fluent English so easily. Moreover, it was obvious that the student group had understood the purpose of development work, and in some sentences, some strengths and essential targets of development of the working method had been described. Considering the description written by the students, the narrative working method seemed to be a rather reasonable method for involving students in the development project. It was a little bit embarrassing to remember that there have been some suspicions in my own mind during the narrative workshop. (Teacher)*

**Partnership with the working life** came up as a positive phenomenon in both stories. In the project, cooperation took place in a good atmosphere, and the student and the teacher both got the impression that they were welcome in co-operative developing. The student felt that the working-life partner gave very fast and detailed answers to questions that emerged in the process:

*I thought that a visit to the hospital would help. Markus welcomed Suvi and I to visit the hospital for one day. I was thrilled about this opportunity! (Student)*

In the teacher's point of view, the most crucial thing was that the students were appealing to their advantages, and the teacher could be proud of their students. In the teacher's story, a mutual group process and the meaning of indulging and even being ridiculed one's self also came up.

*Now, afterwards, when I meet the members of my "spell group" in the POKE project, our encounters, in my opinion, are more intimate just thanks to the common spontaneity and the experience of ridiculing ourselves. (Teacher)*

Few comments are associated with the **student group**. In the teacher's story, the student group's devoted and excited participation came up as a matter of pride, where as in the student material, the group was also a source of insecurity:

*After two hours, when I returned to Tapio's desk in the student office, there was a casual working spirit, which I would prefer to see more often. The students camped around Tapio's desk, sat on the floor and on the edge of the desk, and there was already a finished-looking poster on the desktop of Tapio's computer. The atmosphere was typical for Friday afternoon: relaxed and good-humoured, and the students were cheerful and clearly proud of their output. (Teacher)*

*I also felt that everyone else must be more aware of what we were doing, and my own insecurity was an implication of my own lack of experience. (Student)*

The meaning of one's **personal history** came up in the student's voice. One's own experience with questions about addiction and mental health were prominent as well as the progress of the project as one's own professional development.

*The more I read, the more I started to understand that my experience of life before my studies could be crucial while working in the addiction treatment field. My experiences with treatment and rehabilitation in the mental health field had lot in common with the addiction welfare treatment. (Student)*

## Discussion

According to the analysis, there were a wide variety of experiences which related to the project's activities. In Raij's (2007) process model, Learning by Developing is related to five main concepts: authenticity, partnership, experiencing, inquiry acting, and creativeness. Our analysis shows that these concepts are not independent of each other, and especially, that authentic partnership is one of the main elements of experiences in the development project.

In addition, the results show that the student and teacher experiences are similar to each other in many ways. For example, the confusion and uncertainty associated with the project activities are common experiences. Obviously, such negative experiences are common factors in the process development (cf. Seppänen-Järvelä, 1999), and necessarily related to some specific properties of the POKE project.

According to Varila (2007), coping, survival and the avoidance of shame are important psychological tendencies in development activities. The material of this study provides an indication that uncertainty, confusion, and even a temporary feeling of shame can be important starting points for learning in the project.

Studying in a project, working life partnership and different successes are key sources of positive experience. Also, from the teacher's point of view, the project activities offer a good opportunity for personal learning. There are, however, differences: from the perspective of the teacher, the aspects of formal curriculum, tasks and academic credit, as well as responsibility for the student's experience and learning, play a key role, while the students stress, for example, the importance of the student group.

Project activities support learning in many ways. First, the project creates an inspiring learning environment that supports motivated learning and self-study. Second, the project work is integrated with theoretical knowledge, the students' own experiences and their learning adaption to professional practices. Third, the project activity provides opportunities for success and thus reinforces the students' professional self-confidence. On the other hand, the results show a number of pedagogic challenges in LbD, where, for example, it is difficult to combine traditional course-based study planning and flexible project activities. It took some time to get over the confusion felt by both the student and the teacher in the beginning of the project. In managing LbD, it needs to be considered that there should be enough time to familiarise oneself with the environment offered by a project.

Feelings have been widely discussed among the social-work field. To be able to separate one's own feelings from social work has been considered as an element of professional work (Juhila, 2006, 188). Our analyses view the experiential learning process of substance abuse rehabilitation studies implemented in a development project. The results show that feelings play a major role in the learning process of social work and development activities.

It should be noted that this paper is based on individual experiences, and the results can't be generalised. In addition, the article describes only the experiences of the early stages of the project, and in the context of a long-running project, the experiences would most likely have been different. ■

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## ENTREPRENEURSHIP EDUCATION IN THE LbD ACTION MODEL - REVIEW

### Abstract

This article describes the development of entrepreneurship education based on the Learning by Developing (LbD) action model. The LbD action model, which has its roots in a pragmatic learning theory, offers a methodology for the development of practice - oriented entrepreneurial education. The article begins with the concept of entrepreneurship as a mind-set and a process related to active citizenship. It briefly describes the LbD model that integrates competence producing learning and an innovative research and development project. It then proceeds to introduce the didactic triangle of LbD in the entrepreneurial context, and concludes by introducing entrepreneurial learning, and by considering entrepreneurial education from LbD's point of view.

**Key words:** entrepreneurship education, Learning by Developing, entrepreneurial learning process

### Introduction

'Europe faces a number of challenges that can only be met if it has innovative, well-educated, and entrepreneurial citizens' (EACEA 2012). The statement comes from a report, in which the state of entrepreneurship education, in different European countries, is compared. In Finland the objective to promote entrepreneurship at all the school levels as well as to improve the cooperation between education and work life is strengthened in the development plan for education and research for the years 2011 - 2016 following the one for 2007 - 2012 (Ministry of Education and Culture 2012).

Increasing unemployment in European countries, especially among young people, is one of the reasons why the development of entrepreneurship has become a focus in searching new solutions. Entrepreneurship is recognised by the Council as worthy of promotion because it is seen that entrepreneurial competence can provide benefits to society, even beyond their application to business activity (EDUC 27). Based on Audretsch's (2003) literature survey, it seems that

increasingly new and small firms, rather than large ones, are the major providers of new jobs. It furthermore shows that countries exhibiting a greater increase in entrepreneurship rates tended to exhibit greater subsequent decreases in unemployment rates.

The international survey has regarded entrepreneurship as a way of thinking and course of action (cf. the entrepreneurial way of thinking and an entrepreneurial approach) as well as capability as a cognitive concept (cf. entrepreneurial talents), which have clear business objectives in relation to the operating environment and are different from the general methods. (cf. Haynie, Shepherd, Mosakowski & Earley 2010, 217 – 229.) They are identified in different ways of defining the concept. Although entrepreneurship is often linked to creating commercial value, there is also a field which has become known as social entrepreneurship. It focuses on improving conditions or enabling change in the wider social sphere or in the direction of entrepreneurial sustainability (Bessant and Tidd 2011, 10 - 25) that can be taken into account in developing entrepreneurship education.



Enhancing entrepreneurship begins by focusing on the development of entrepreneurship education. We all go to school. It offers an environment where all the potential, future entrepreneurs are achieving new competences for their future lives. The world that is waiting for them is full of unexpected situations and constant changes, where new ways of action are needed as well as self-directedness and taking responsibility for one's own life.

Being aware of the challenges and expectations, mentioned above, the transnational project 'Young Entrepreneurship – Developing in Action (YEDAC)' (2013 – 2015) funded by the EU, aims for the creation of trans-European models for school teachers to support the development of their skills and methods in applying entrepreneurial learning to different teaching subjects and to different contexts. The member states in the project are: Denmark (coordinator), Austria, Finland, the Netherlands, Bulgaria and Spain. The project selected the Learning by Developing action model to be applied in supporting the development of entrepreneurship education, and Laurea as the work package leader in producing the entrepreneurial didactic model ([www.yedac.eu/](http://www.yedac.eu/)).

The Learning by Developing (LbD) action model has been developed at Laurea University of Applied Sciences (Laurea UAS) since the beginning of 2000. It was developed with respect to the challenges given to higher education institutes in Finland in the university law reforms. Higher education institutes needed to influence society and the surrounding regions. Cooperation with real working life led to change practices at Laurea, and research work (Raij 2007; 2013), focused on the conceptions of teachers concerning project-based learning, introduced the action model that was named as Learning by Developing, referring to future-oriented ways of action in a working life.

Based on successful outcomes LbD was nominated as the basic strategy at Laurea (Laurea Strategy 2007) and it became Laurea's trade mark. Laurea has become the most awarded UAS in Finland with five Centre of Excellence nominations from the Finnish Higher Education Evaluation Council. The LbD action model emphasises acting together in projects, substantial cooperation with working life experts, equality between partners, and curiosity in front of new challenges, risk taking abilities, creativity, and the development of competences that enable meeting an ever-changing world of work (Raij 2013; LbD Guide 2011). The choice to apply the LbD model in the YEDAC project led to consider entrepreneurship education from a pragmatic learning concept's point of view, as it is in the LbD model. The focus in this article is on two research questions:

1. How does entrepreneurship education fit the Learning by Developing action model?
2. How does LbD fit entrepreneurial learning?

These questions will be approached by firstly discussing the concept of entrepreneurship as an entrepreneurial mind-set and a process related to entrepreneurial learning. The discussion will continue by focusing on the LbD action model. The didactic triangle, with the corner elements in the LbD, will then be introduced and compared to an entrepreneurial learning context. The article will close by presenting a didactic model for entrepreneurship education, and with the answers to the research questions.

## About entrepreneurship as a concept

The following definitions are aimed to describe the use of the concept of entrepreneurship in different meanings; focusing at first on the characteristics of an operator, and ending by looking at entrepreneurship related to active citizenship. A wide range of meanings, on the other hand, show how entrepreneurship has become important in finding solutions to societal challenges in European countries.

As Gartner (1989) pointed out, entrepreneurship research traditionally focused earlier more on entrepreneurial characteristics or activities carried out by the entrepreneur. The word entrepreneur originates from the French word, 'entreprendre', which means 'to undertake'. In a business context, it refers to starting a business, and at the same time it includes taking initiative and responsibility. On the one extreme, an entrepreneur is a person of very high aptitude who pioneers change, possessing characteristics found in only a very small fraction of the population. On the other extreme of definitions, anyone who wants to work for him or herself is considered to be an entrepreneur. (cf. Reijonen 2007, 37.)

In his own description, Gartner (1989) considers the concept of self-motivated entrepreneurship. According to him, it creates a rich basis for entrepreneurial education, as it is not so much focusing on characteristics of the operator, but on self-directed attitudes and behaviour. Johannisson and Olaison (2007) continue that this kind of attitude and behaviour are created and used, empowered particularly by accountability and creativity, which, for example, contribute to the challenges of life in every area. Also, Kyrö's (1998) description of self-oriented entrepreneurship refers to an individual's overall entrepreneurial attitude and approach in all areas of life. It emphasises vision, the will and the ability to influence one's own future, as well as taking responsibility for one's own life and activities, such as learning or income.



The Green Paper Entrepreneurship in Europe (2003) widens the concept by highlighting that entrepreneurship is first and foremost a mind-set. 'It covers an individual's motivation and capacity, independently or within an organisation, to identify an opportunity and to pursue it in order to produce new value or economic success. It takes creativity or innovation to enter and compete in an existing market, to change or even to create a new market. To turn a business idea into success requires the ability to blend creativity or innovation with sound management and to adapt a business to optimise its development during all phases of its life cycle' that can be identified as entrepreneurial talents. Hisrich, Peters and Shepherd (2010) sum up the aspects of the entrepreneurial process as identifying and evaluating the opportunity, developing a business plan, resources required and management of the enterprise.

An entrepreneurial mind-set is the ability to rapidly sense, act and mobilize, even under uncertain conditions, as Ireland, Hitt and Sirmon (2003) have posited. The European Reference Framework of Key Competences for Lifelong Learning (2006) associates sense of initiative with entrepreneurship, and Bessant and Tidd (2011, 10 - 25) relate innovation and entrepreneurship by seeing innovation to be driven by entrepreneurship, which enables good ideas to become a reality.

The concept of active citizenship was introduced by the Council of Europe, Education for Democratic Citizenship. It includes participation in the community, including playing a part in the decisions and processes that affect a citizen,

particularly public policy and services. This requires knowledge and understanding of political, social and economic context of citizens' participation so that they can make informed decisions. An active citizen is able to challenge policies or actions and existing structures of the basis of principles such as equality, inclusiveness, diversity and social justice. It also requires acquiring knowledge, skills and attitudes, being able and willing to use them in decision making, and taking action individually and collectively. (Council of Europe 2004.) Active citizenship emphasises the role and competence of an actor, as well as activities and responsibilities. The key characteristics of active citizenship can be seen to guide the development of entrepreneurship education with its objectives and contents aiming to produce an entrepreneurial mind-set that is seen in citizens' innovative ways of action.

In conclusion, the concept of entrepreneurship has different meanings depending on the selected 'what and how' perspectives. (Figure 1.) This article considers entrepreneurship with respect to entrepreneurial education. The educational purpose is not to push every learner to become an entrepreneur but rather to support the development of an entrepreneurial mind-set, and offer resources for taking responsibility for building one's own future. Entrepreneurship is seen as a mind-set and as a process leading to identifying an opportunity and pursuing it in order to produce new value or economic success based on the principles such as equality, inclusiveness, diversity and social justice. An individual's ability to turn ideas into action demands not only creativity and innovativeness, but also competences as new ways of action.

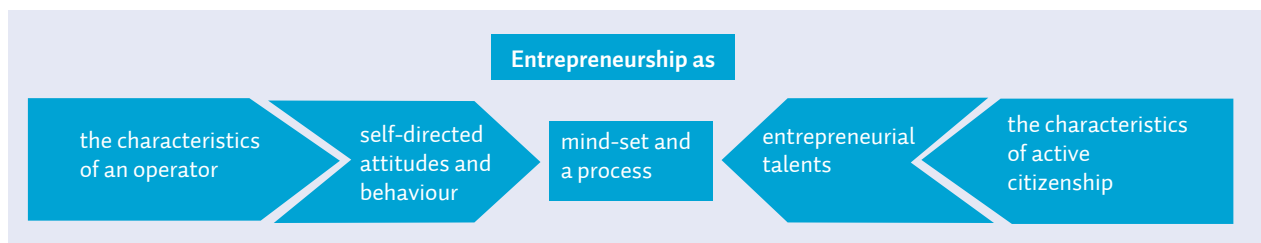


Figure 1. Entrepreneurship as a widening concept based on given meanings.

## The entrepreneurial view in a learning process

In an entrepreneurial literature, a learning process is described based on the skills of an entrepreneur or looking at different phases in a development process. Applying Tötterman (2008) knowledge and skills in an entrepreneurial learning process are knowledge related to business skills, networking skills, marketing skills, administration skills and commercialising skills, as well as skills related to creativity, flexibility

and design. They enable the management of a process from identification or creation of venture ideas, decisions and actions related to development and execution of these ideas towards the realisations of a new business venture.

According to Hisrich et al (2010), there is an agreement that behind being an entrepreneur there is a kind of behaviour that includes; initiative taking, the organising and reorganising of social and economic mechanisms to bundle resources

in innovative ways, and the acceptance of risk, uncertainty, and/ or the potential for failure.

Bessant and Tidd (2011, 10 – 25) have described the phases of setting the entrepreneurial goals in the entrepreneurial context. The phases are; recognising an opportunity, finding

resources, developing a venture, and creating value. (Figure 2). Entrepreneurial goals and context through the availability or scarcity of resources, talent, opportunities, infrastructure and support are additionally profoundly affected by the education, training experience and aptitude of individuals as Bessant and Tidd (2011) have clarified.

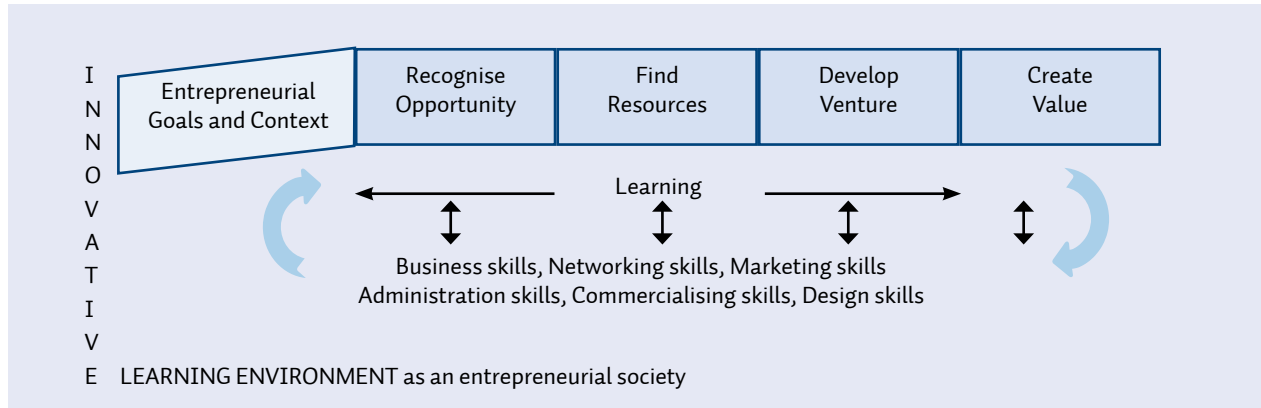


Figure 2. Aspects of the entrepreneurial process with entrepreneurial skills in an innovative learning environment (appl. Tötterman 2008 and Bessant & Tidd 2011)

The descriptions of entrepreneurial talents, as well as behaviours, can be used as basis in identifying entrepreneurial learning objectives that enable, the management of a process from identification or creation of venture ideas, and decisions and actions related to the development and execution of these ideas towards the realisations of new business venture. The identified talent – based competences aim to enhance influencing on one’s own future, and taking responsibility for one’s own life and activities.

A future entrepreneur is able;

- to recognize opportunities and take initiatives,
- to find and bundle resources,
- to build and maintain networks,
- to develop and market business ideas,
- to respond to challenges and find new solutions,
- to design,
- to manage activities and processes,
- to commercialise new innovations, and
- to make decisions and realise new business ventures.

The identified phases describe the main processes leading to value creation as entrepreneurial goals in the entrepreneurial context. They will be utilised in planning entrepreneurship education and creating an entrepreneurship education context that enables change and good ideas to become a reality.

In order to succeed in enhancing entrepreneurship, the participation of the whole society is involved. In the Council’s paper, it is clearly expressed as a recommendation. ‘Building

an entrepreneurial society involves everyone. Attitudes towards entrepreneurial initiative, and failure, must be made more positive. Crucial to achieving this are those on whom today’s and future entrepreneurs depend’. (COM 2003)

## LbD action model in entrepreneurship education

The Learning by Developing (LbD) action model is based on a pragmatic learning concept as Taatila & Raij (2011) have shown. Referring to Ardalan (2008), in pragmatism, the world of work is seen as ever-changing and today’s truth might be different tomorrow. Learners need new ways of action to be able to meet future challenges, and find new solutions. The LbD action model, with its phases and characteristics, was identified by studying the changing practices at Laurea USA, since the three tasks (pedagogy, regional development, research and development), given in the USA law, were seen as an integrated whole. The integration led to develop networking and cooperation with a region resulting in many successful project works. It, in turn, led to see an authentic working life - related project as a learning environment (Raij 2013).

The LbD actions can also be seen as an integration of different types of knowledge: knowledge in theories and models, embedded in skills and abilities, moral knowledge, and experiential knowledge, as well as an integration of different learning components; knowing, understanding, acting and managing situations. This leads to describe learning

objectives as competences that include a knowledge base, skills, abilities to act, and abilities to manage situations, as well as to build a learning environment around projects, as different workshops, in which learners have the possibility to achieve tools in the forms of different types of knowledge. (Raij 2000; 2013.)

In entrepreneurship education, a connection with a real-life context is seen as meaningful, as it is also emphasised in guidelines for entrepreneurship education given by the Ministry of Education and Culture (2009). Learning competences include an integration of different types of knowledge connecting theory and practice, and the purpose is that a learner will be able to do something for his or her own future. Learning is seen as a tool for producing new habits of action that makes it possible to create a new business - like idea, to test it and discover the ways of implementing it in the future. This can be seen to facilitate the development of an entrepreneurial mind-set that supports the development of new ways of action as an active citizen. It happens through the interactions between learners, their teachers, and entrepreneurs as well as other stakeholders.

In LbD, acting together is emphasised. It means co-creation, co-operation, and co-design as equal partners, a process in which all the partners have different roles related to their expertise and own objectives. The various activities are supposed to change individuals and the environment. The following example is introduced to make it more concrete. The development of a marketing plan for Laurea's partner company was carried out in co-operation between business people, and Laurea's staff and students (P2P project 2014). In the project, based on careful competitor analyses, and home-page analyses, students produced the 'digi-marketing' plan by utilising social media and other internet possibilities, and managed to change marketing behaviour in the company by offering new approaches and ideas, as well as their own actions.

By applying LbD, the development of an entrepreneurial mind-set proceeds from experiences of how 'a business idea' is created, developed further, and tested with entrepreneurs. Entrepreneurial learning takes place by acting together in an entrepreneurial context. A starting point is a discovered idea for an inquiry. New, entrepreneurial words and concepts are used as means of interaction, communication and coordination. Learning proceeds based on experienced actions and their consequences. In entrepreneurial education, applying the LbD action model means that learning is seen as a tool, facilitating the achievement of new ways of action that are described as entrepreneurial learning competences. Subject matters are seen as different possibilities for establishing workshops, in which new tools can be achieved. The

following description is introduced as an example. A health care student had an idea of developing remote interpretation services for non-native health care clients by utilising either internet or mobile applications. She acquired the needed subject-specific knowledge and skills, and additionally business skills including financial management skills needed in the establishment of an enterprise. This project became her learning environment. Additionally, she participated in the Cambridge Venture Camp in the UK (established in 2007 between Laurea UAS and Cambridge University) with her business idea plan. In Cambridge, the student contacted many business experts as well as other business-oriented students and ended up finding a partner for her future enterprise. Her learning path led to the establishment of an enterprise where remote interpretation services can be bought today.

The LbD action model integrates competence-producing learning and an innovative R&D project. In entrepreneurship education, an innovative project, based on learners' own ideas, and derived from a real-life context, offers a possibility to achieve entrepreneurial competences and at the same time to produce something new.

The characteristics of the LbD are authenticity, partnership, trust, creativity and an investigative approach (Raij 2007). If we look at entrepreneurship education, we see that authenticity arises from real-life connected entrepreneurial projects that form the learning environment. Partnerships between learners, their teachers, entrepreneurs and other stakeholders are built on trust and on a commitment-inspiring agreement. Different subject matters add value to the development process of a project. The role of a teacher involves management and organisation carried out with different participants, project planning, and participation in different project stages. All this requires the learning culture, in which leadership supports and gives spaces for equal participation in the development of entrepreneurship education, as well as invites the involvement of the surrounding society.

Laurea offers bachelor level educational programmes in two different campuses that are introduced as examples of how to enhance learning entrepreneurship and business development, as well as creating new businesses through LbD: Peer - to - Peer (P2P), and Laurea Business Ventures (LBV). Learning objectives are described as action-related competences in entrepreneurship related subject areas. Learning always takes place in authentic development projects. The differences can be found in the focus areas. The P2P programme aims more to enhance entrepreneurship by getting students involved with business people and carrying out different developmental projects in and for companies.

The P2P students are supposed to find their own projects by selecting interesting project ideas offered by companies or Laurea staff. In LBV, which was established to emphasise the development of one's own business, business-development-related subject areas are highlighted. The LBV students are also supposed to find their own projects either, by creating their own business ideas or businesses, or by selling their competence to existing organisations. In the both programmes students define the project related learning objectives in cooperation with their teachers, and carry out their projects in different workshops, in which the idea is to facilitate their competence construction processes in relation to practical experiments and give to them tools for their project work. (Laurea 2014.)

## Entrepreneurship education in LbD – oriented didactic triangle

This part is an attempt to draw the LbD oriented didactic triangle in the context of entrepreneurship education for enabling the discussion of the different roles a teacher, learner, and content have. Referring to Kansanen (1999, 2012), learners, teachers and content are the three entities that form the corners of the didactic triangle. As Kansanen points out, didactics are always connected with some context in the society. He emphasises, however, the relation between a teacher and a learner, and a learners' relation to the content is seen as the key to didactic understanding. (Figure 3.)

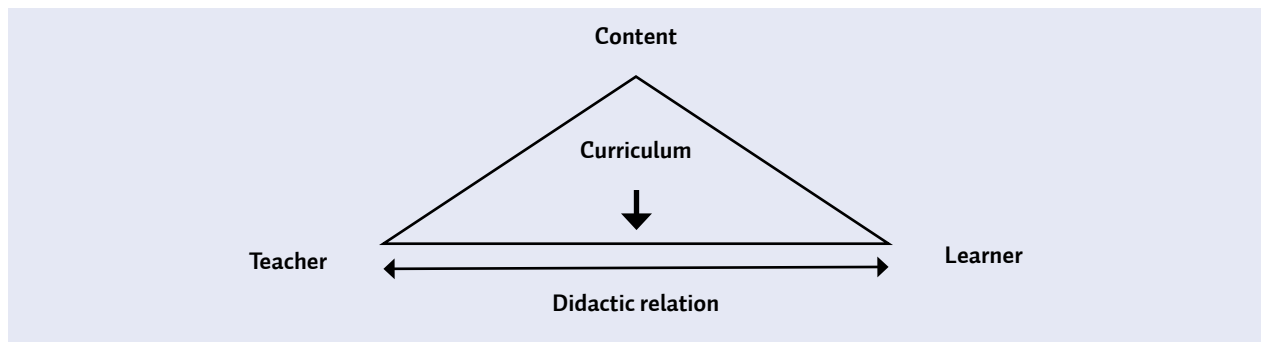


Figure 3. The didactic relation in the didactic triangle applying Kansanen (1999)

In a traditional learning situation, a teacher teaches with respect to the content (subject) and a learner learns by studying. The aims and learning objectives are described in a curriculum. The objective is achieved when a learner displays the gained knowledge often by giving right answers in an exam.

In LbD, in which a research and development project forms a learning environment, and new competences as new ways of action, as well as new innovations are the desired outcomes, the entities in the didactic model have different meanings. The partners in entrepreneurship education are students, teachers, entrepreneurs as working life representatives, and other stakeholders depending on the nature of a project.

Kallioinen (2011) writes about transformative teaching connected to the development of the LbD model. The traditional classroom teacher has no role in LbD (LbD Guide 2011). A transformative teacher is seen as a facilitator, co-actor, and a coach, representing his or her own expertise. Additionally, working life representatives, who share their experiences and utilise them in a project, are seen as co-actors, facilitators and coaches. The new roles of a transformative teacher are identified based on the vast practical experiences at Laurea since 2005: 1) as preparers and organisers of the LbD implementation process; 2) as implementers, and 3) as evaluators (LbD Guide 2011). Referring to the expectations

concerning active citizenship, teachers are responsible for giving space and offering opportunities to learners to become active citizens, who are able to make decisions and take actions individually and collectively by following principles such as equality, inclusiveness, diversity and social justice (c.f. Council of Europe 2004) these also are in line with Laurea's own values: sense of community, social responsibility and creativity.

Entrepreneurial projects differ from each other, and contents are derived from various subject matters. Thus, at the beginning of an LbD project, it is difficult to know what kind of learning will take place. We can say that LbD means team teaching, but the team consists of different co-actors and different experts. Since the entrepreneurial project has connections with authentic real - life situations, the learning outcomes are in line with the entrepreneurial goals, but the objectives can be achieved in many different ways as well as in many different contexts. This kind of project enables the integration of different competences. Transformative teaching offers possibilities to develop new ways of action as a teacher. As a preparer, a teacher builds networks and contacts entrepreneurs and other stakeholders in a region and develops cooperation. As an implementer, a teacher can act in a project as a developer or a researcher or facilitate students in different workshops to achieve new tools needed

in project work. As an evaluator, a teacher is responsible for the holistic assessment. It is seen as challenging, because students do not act and learn in the same contexts. Evaluation takes place in many different ways, and it can be seen as teamwork. In Laurea's LbV programme (p.9), evaluation is described as a reflective, development-oriented co-operational process between the students, staff mentors and working-life representatives (Laurea, 2010). The entrepreneur's feedback, peer feedback, the students' own self-evaluation as well as teachers' quantitative and qualitative assessments are all important elements in holistic evaluation. Two aims can be separated. First, the evaluation is focused on a business-like project as a process. Secondly, students' entrepreneurial competences are identified and credited by comparing them to the learning objectives described in curricula. (c.f. LbD Guide 2011.) Therefore, it is considered important that learning outcomes are described as concrete entrepreneurial competences addressing the development of an entrepreneurial mind-set, and learning objectives direct the planning of personal curricula, not single study units. Competence-oriented assessment includes students' knowledge base, skills, and abilities to act and manage situations set in learning objectives. By acting together in projects, students can show what they have really learned, and describe it, for example, in portfolios or learning diaries that are used at Laurea (c.f. LbD Guide 2011).

In LbD-based entrepreneurship education a student is in the central role. Giving space for individual creativeness and facilitating the integration of different talents can be seen to promote every learner's growth to find his or her own strengths and possibilities for a future life. In traditional classroom teaching, where there are tens of students with one teacher, the challenge might be too high. In LbD-based education, a student is seen as a partner, who develops his or her own idea in a project, achieves entrepreneurial competences at the same time, and produces new entrepreneurial innovations. Acting together in a real entrepreneurial project is seen as an enabler. Giving space for students does not mean leaving them alone, although some of the students once complained that 'they were thrown into the water without being asked if they can swim'. Based on systematically collected student feedback, it was concluded that the LbD model can significantly advance the general working-life readiness of the students, as well as their high-quality learning possibilities. It was enabled by cooperation and the development of partnerships, as well as students acting as partners. Additionally, LbD was seen to enhance the growth

in self-directed learning. (Kallioinen 2008.) In the second international LbD evaluation in 2009, the authors identified the following as the strengths of LbD: 'the growth of independent thought, self-confidence, a highly experiential atmosphere, a high degree of responsibility, early experiences of personal responsibility for results and duty to colleagues, early experiences of having people relying on you and experiences with equality.' LbD is also focused on ensuring that students can 'do things' rather than just be able to repeat answers in exams. (Vyakarnam, S. and Illes, K. (2009.) All these strengths can be seen in line with the objectives of active citizens (c.f. Council of Europe 2004) and as evidences of how the principles; equality, inclusiveness, diversity and social justice could be adopted through LbD. Furthermore, the annual number of start-ups (around 20) funded by Laurea students can be seen as evidences of the impacts of the LbD model.

A curriculum has an essential role in directing school work. The curriculum reform related to the development of LbD (Laurea 2007) was based on the identification of the holistic model of competence (Raij 2000) that has been used as a frame in Laurea's pedagogical strategy since 2002. In describing learning objectives subject-specific knowledge, as well as the experiences of different project participants, were taken into account. The outcomes describe what kind of competences a student has achieved and how they correspond to the expected requirements. Competences in curricula are related to different subject matters. In real-life-oriented R&D projects, different subject matters are needed as enablers to successfully carry out a project. In the latest report, in which entrepreneurship education at European schools was compared, it was noticed that entrepreneurial content was applied in very different subject matters (European Commission 2012). In the LbD projects, subject matters can vary depending on the nature of a project and the development process of a project. In an entrepreneurial curriculum, learning objectives are described as competences that are needed in enhancing entrepreneurship in a society, 'to change or even to create a new market' as it was highlighted in the Green Paper (2003).

In conclusion, the didactic triangle that is assumed to fit entrepreneurship education will be introduced by taking into account the pragmatic nature of the LbD action model, the application of the model and the different meanings of the corner entities described above (Figure 4).

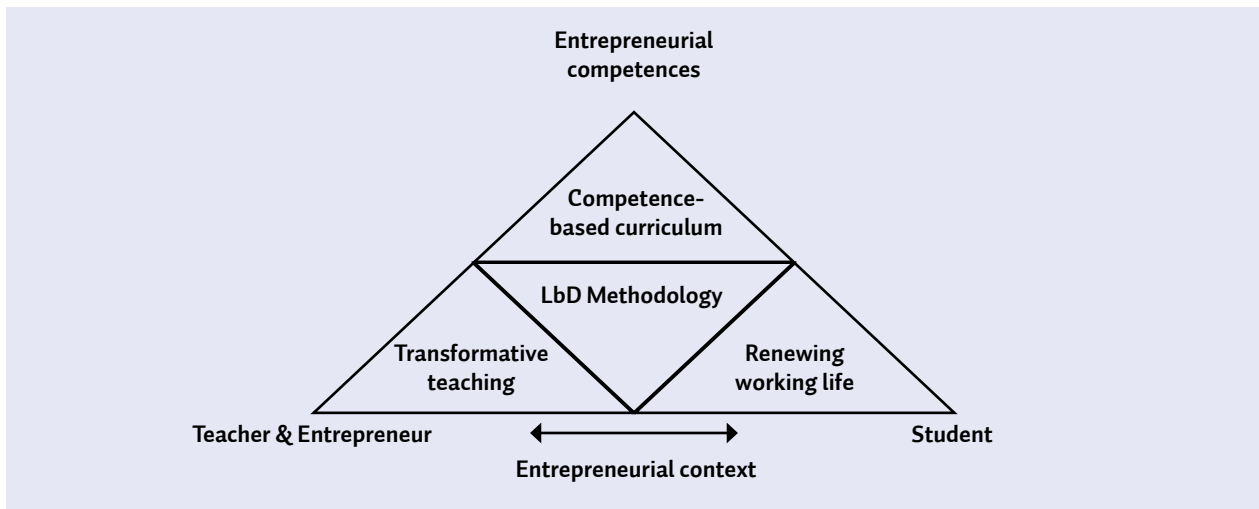


Figure 4. The entrepreneurial didactic triangle in the LbD action model.

The didactic triangle in LbD, in the entrepreneurship education, is located to the context where a region, with all the different enterprises and entrepreneurs as well as teachers, has an important role. School is of life, not for life, and learning takes place most favourably through models and applications that have genuine foundations in life as Dewey (1929, 39–40; 1934, 35–59) pointed out in his time. Considering the relations between the core entities, it can be summarised that a teacher has many different roles through transformative teaching for supporting and facilitating students in achieving entrepreneurial competences, while a student should achieve entrepreneurial competences for being able to renew working life as a developer.

## Entrepreneurial learning activities in LbD

Referring to Bessant's and Tidd's (2011) description (p. 6), the phases of setting the entrepreneurial goals in the entrepreneurial context are; recognizing an opportunity and finding resources related to planning; developing a venture related to acting and creating value related to evaluating and developing. The stages of the LbD action model that were identified in the study (Raij 2007; 2013) follow each other in different orders depending on the needs of learners and the development processes of a project (Table 1).

Table 1. The stages of the LbD model

planning	identifying the phenomenon of the R&D project with its concepts and relationships between concepts, and defining a project with its activities
	reflecting on the meanings of previous research findings and solutions
	predictive recognition and description of processes related to the project, which makes possible both an abductive hypothesis (an initial presumption (based on prior clarifications, facts and discoveries) and a personal curriculum
acting	acquiring tools that are existing theories and models, subject – related concepts, and instruments for acting
	acting together, which encompasses the creation of problem-solving skills, leading to new habits of action;
evaluating	continuous evaluation of the project and personal learning process (the consequences of activities)
	reflecting on shared experiences and creating new meanings
	recognising and evaluating achieved competence
	assessing the impact of the project
developing	sharing, disseminating and productising the outcomes developing



The stages can be identified also as learning activities. Thus, in the entrepreneurial learning context, learning activities could be summarized in a following way (Table 2):

Table 2. Learning activities in entrepreneurship education

planning	identifying regional challenges
	creating new business-like ideas
	defining and developing a project
acting	reflecting on both earlier and new experiences
	acquiring entrepreneurial tools (theory knowledge, skills, values)
	acting together by co-creating and solving problems
evaluating	assessing learning and a project
developing	developing new ways of action by utilising the outcomes

In the above mentioned YEDAC project (p. 2) ([www.yedac.eu/](http://www.yedac.eu/)), it was concluded, based on literature review and focus group discussions that are formed by experts from different partner countries, to describe entrepreneurial learning activities as in the following way: discovering new ideas (under the selected theme); defining a project; networking; acquiring entrepreneurial tools; co-creating and solving problems; experiencing, reflecting on consequences; and developing new ways of action that are in line with the LbD learning activities.

The activities described are suggested to be used as a guide for developing a process model for entrepreneurial learning. We can now utilise them as a basis for establishing entrepreneurial workshops to enable the achievements of learning objectives. The workshops are meant to facilitate learning and all the partners' work by structuring different phases in a project work in the following way:

**Thematic workshops:** Teachers, students, entrepreneurs and other stakeholders select firstly a theme that is connected to a region by taking into account regional challenges, and secondly plan different approaches based on subject matters that will be integrated.

**Idea workshops:** Constructed thematically. Students create and sell new ideas to be further developed in teams that

are formed around the most potential ideas. New ideas are tested, and the potential ones will be approved based on shared feedback and encouragement. Partners in idea workshops are mainly students, teachers and entrepreneurs.

**Entrepreneurial tool workshops:** Provide students with different tools (knowledge and skills, and values) needed in the development of selected business-like ideas as projects.

**Project workshops:** A project is defined and developed. They offer facilities, guidance, coaching, co-creation and acting together. Partners in project workshops are students, teachers, entrepreneurs, and other stakeholders. The project workshops additionally facilitate dissemination of outcomes as new ways of action, and new products.

**Reflecting workshops:** Enable reflection on the meanings of consequences in the development of projects. Consequences can be positive or negative but they all are valuable in offering learning experiences that lead to new ways of action.

**Evaluation workshops:** Enable the continuing evaluation of the projects developed around the ideas, learning processes, learning outcomes and products or services produced in the projects. Evaluation as a team includes self-evaluation, peer evaluation, and teachers' as well as entrepreneurs' evaluation. (Figure 5.)

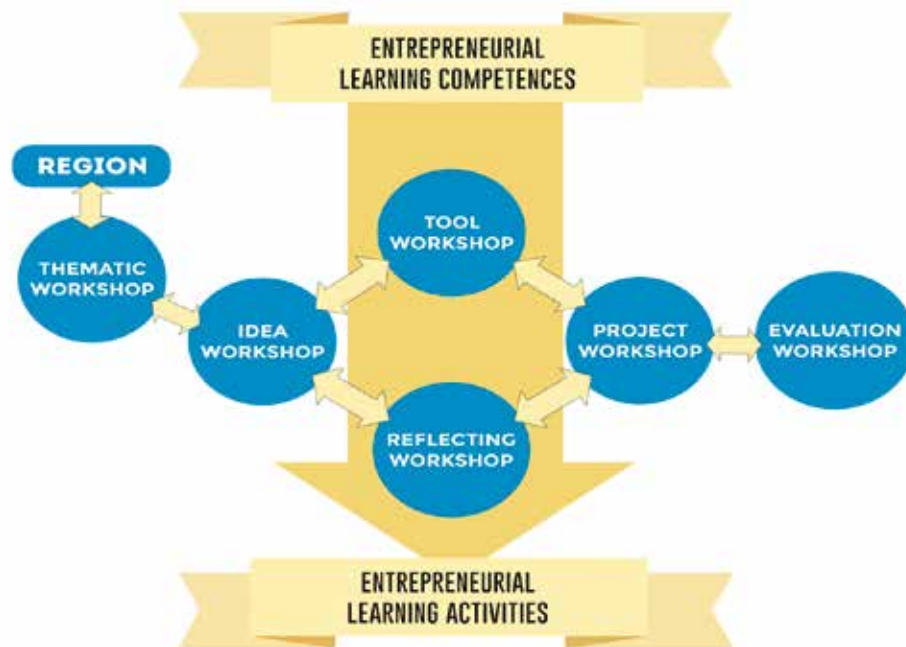


Figure 5. Entrepreneurial learning context.

Learning activities give their own meanings to workshops that provide students with knowledge, skills and values, and actions needed in working life. New entrepreneurial ways of action can be identified as learning competences.

### The entrepreneurial way of learning in the LbD action model

If we accept that the educational goal is to have an effect on social practices, we should pay attention to the learning practices that are most effective in creating a social and personal acceptance of the subjects in a curriculum and the competence to use this information in practice (Fugate & Jefferson, 2001). We can now consider an entrepreneurial learning process from the perspective of the LbD way of learning. The starting point is creating an entrepreneurial idea, something new that learners are willing to develop further. Around good ideas, project teams are established, where teachers and entrepreneurs also have a role. Responsibilities

are divided and roles are named. Working plans are made together. Needed tools can be achieved in workshops that have been built around ideas. A workshop can be a lesson where new concepts and knowledge embedded in skills and abilities are dealt with, as well as language skills as part of networking skills or computer skills as part of administration skills, or it can be an enterprise where experiential knowledge is shared. Creativeness is asked from teachers when they plan how to facilitate and guide learners in presenting their ways of action in projects and achieved outcomes. Consequences as experiences are constantly reflected on and they are given meanings. Based on this, new ways of action are developed. Success is rewarded. Failure is seen as a valuable learning experience that leads to the development of new habits of action in front of new challenges. They are always competences as new ways of action that are assessed. The aforementioned entrepreneurial process with entrepreneurial skills (p. 5) can be introduced as the LbD way of learning in entrepreneurship education (Figure 6).

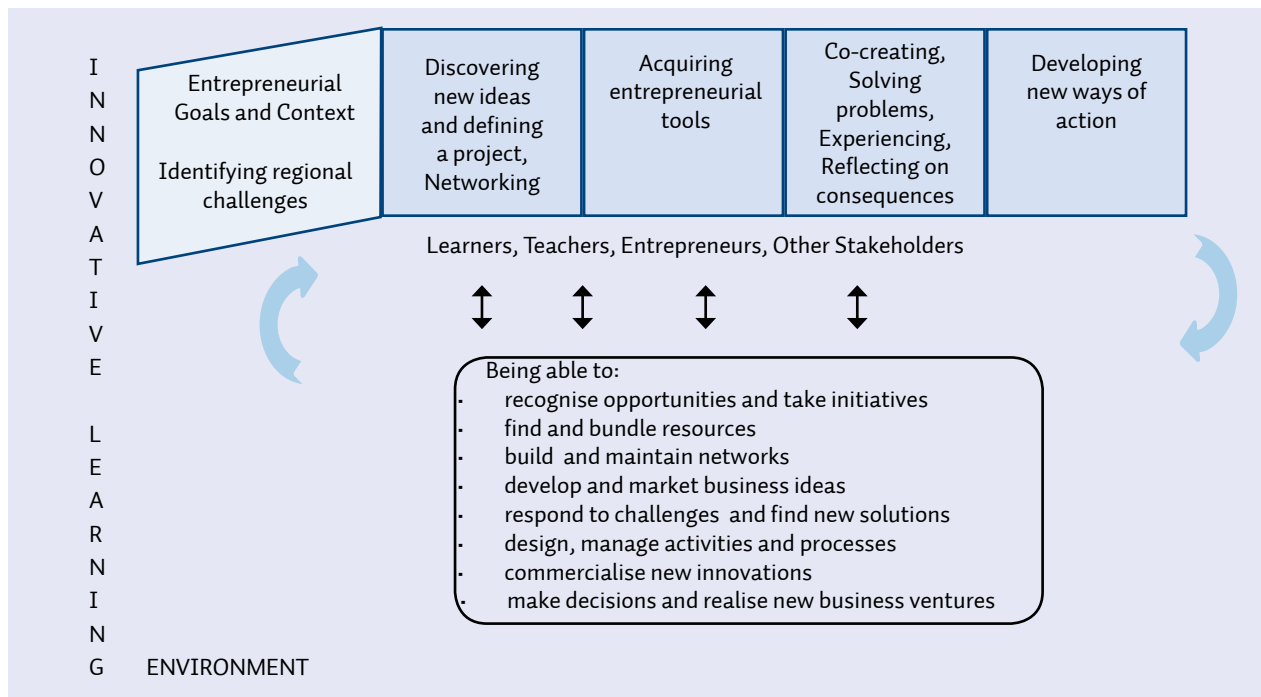


Figure 6. The LbD way of learning in an entrepreneurial context.

Setting entrepreneurial goals as learning objectives requires identifying the objectives as entrepreneurial competences that enable the development of active citizenship (p. 4). Creating an entrepreneurial learning context requires cooperation with enterprises and entrepreneurs as well as teachers with different subject-specific competences. School has to enter the real life context; designing, developing marketing plans as well as commercialising plans leading to value creation are the concrete phases in an entrepreneurial learning process.

A teacher's role as a facilitator is multi-faceted. It is not enough to be an expert in one's own subject, but teachers have new roles as preparers and organisers of the LbD implementation process, as implementers; and as evaluators. They are supposed to network, co-create, participate in project activities as facilitators and coaches, develop and investigate. Entrepreneurs can be seen as partners who share their experiential knowledge and competences and support learners in the development of project ideas. Enterprises are seen as workshops in an entrepreneurial learning environment. Based on Laurea's experiences, cooperation with enterprises has added value for all of the participants. Enterprises receive a constant stream of new ideas and innovations and future workforce. Cooperation between the public (school) and private organisations give space to the integration of different competences and make it possible to go forward. Similarly, enterprises offer a constant stream of interesting project ideas and subjects and share competences based on

their own experiences and the requirements of a job. (c.f. Taatila & Raij, 2012.)

An entrepreneurial learning environment can be described first as different types of knowledge (knowledge written in theories and models, knowledge embedded in skills and abilities, moral knowledge and experiential knowledge), which demand the close cooperation of teachers, entrepreneur and other stakeholders. Secondly, a project around a discovered idea forms a learning environment. Furthermore a learning environment is seen as a physical and psychological space. Established workshops provide students with tools to accomplish different tasks in the development of entrepreneurial projects. As a psychological space, it requires a warm, respectful and open atmosphere, where everyone is seen as an individual and equal partner and where differences are seen as possibilities to find new innovative ideas. The concept of a learning environment in an entrepreneurial context does not work in a traditional classroom.

LbD became the main strategy at Laurea (Laurea strategy 2007). The decision presented the challenge to focus on the development of learning culture in such a way that it supports transformative teaching, participation, equality and constant interaction with a region. Participative leadership is emphasised, which includes 'the bottom up' way of developing work, and the integration of different competences. (c.f. Laurea strategy 2007).

## Didactic model in entrepreneurship education

Considering entrepreneurship education as fitting in the LbD model, an attempt to introduce an entrepreneurial didactic model for learning entrepreneurship will be made. The model is built by utilising the YEDAC project work ([www.yedac.eu/](http://www.yedac.eu/)), in which literature review and focus group discussions (p.2) led to identify the central concepts of

entrepreneurship education as a learning culture, learning environment, learning activities and learning outcomes, with their properties that are in line with the characteristics of the LbD and the entrepreneurial talents described above. They are seen as a part of a whole that, together, describe the key entities of the didactic model. The actors in entrepreneurship education are; a teacher, a student, an entrepreneur, and other stakeholders. (Figure 7.)

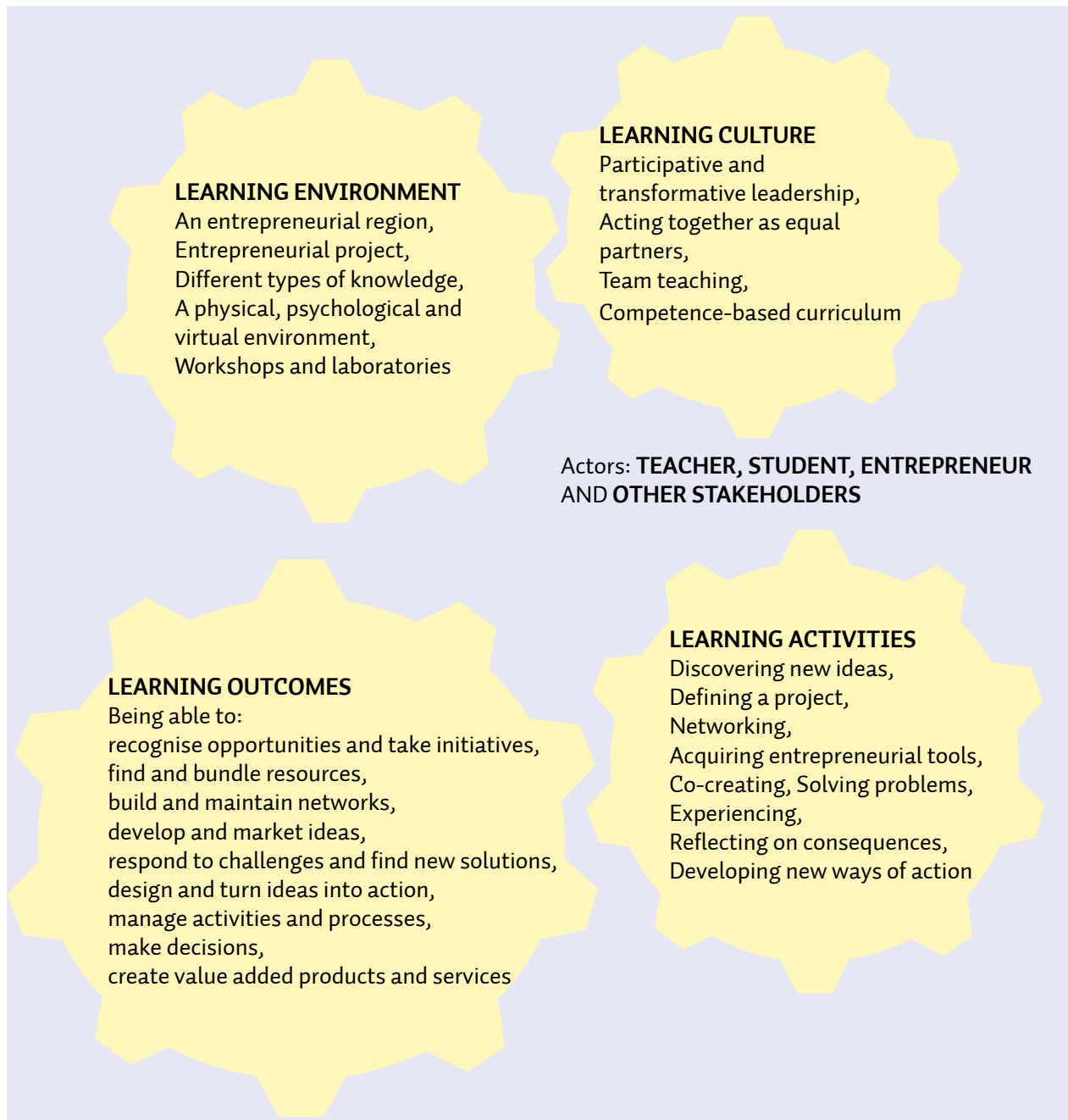


Figure 6. The LbD way of learning in an entrepreneurial context.

## Conclusions

The choice, made in the transnational YEDAC - project, of applying the LbD action model in the development of entrepreneurship education led to the consideration of how LbD fits entrepreneurship education, and how entrepreneurial learning fits LbD.

In LbD, the connection with real working life is essential, and a real-life-oriented project forms a learning environment. In this respect, it seems to correspond with the objective 'to improve the cooperation between education and work life' (Ministry of Education and Culture 2012).

Entrepreneurship education is considered related to an entrepreneurial mind-set, which leads to the development of entrepreneurial competence (knowledge, skills, values, as well as new ways of action) or, in some cases, to the development of one's own business. The development of an entrepreneurial mind-set is seen as an enabler for acting as an active citizen, who takes part in decision making in a society, as well as takes responsibility for one's own life and activities. The LbD action model is introduced related to entrepreneurship education, and the LbD phases are followed in the identification of the process model for guiding the development of an entrepreneurial learning context, as well as for structuring participants' different learning paths. The present didactic triangle of the entrepreneurial LbD model is used as a frame for introducing the key actors and elements in entrepreneurship education. Finally, the identification of the central concepts of entrepreneurship education and their relationships led to the construction of the didactic model of entrepreneurship education in the LbD action model.

Based on the present discussion, it can be said that the LbD action model, with its properties seems to fit the development of entrepreneurship education. According to the experiences of LbD, co-operative authentic actions between learners, working life experts and sometimes users, who can be invited to participate, makes it possible to achieve new competences as new ways of action. Based on our experiences at Laurea, applying LbD in business education has led both to

the development of start-ups (student enterprises (n=18) and invention reports (n=8) in 2012), and to find a job in a company after graduation (Laurea statistics 2012).

Learning the process of discovery and self-sufficiency (Ardalan 2008) is evident in the LbD action model, which is in line with the goals of active citizenship. Based on them, LbD, which is built on partnership in entrepreneurship education, offers the possibility of playing a part in the decisions and processes that affect an individual and a community. Sharing experiences and conceptions with other students and teachers, entrepreneurs and other stakeholders are meant to facilitate making a positive difference. In this way, real dialectics with different opinions, conceptions, as well as activities are tested and the situational truths are discovered. Students seem to be able to take action individually and collectively as the students' strengths, identified 'as early experiences of personal responsibility for results and duty to colleagues and early experiences of having people relying on you and experiences with equality' (Vyakarnam & al 2009) show. The LbD way of learning has a real-life connection that opens school doors and invites everyone 'to be involved in building an entrepreneurial society'.

The key questions are directed to teacher education. How can teachers become more entrepreneurial even though they are used to seeing entrepreneurship education as a topic that concerns only business-related subject matters? To be successful, entrepreneurship should be seen as a mind-set and a process in all the studies and subject matters. Creating 'an entrepreneurial school' is a challenge, but it could respond to the argument that entrepreneurial competence can provide benefits to society, even beyond their application to business activity (EDUC 27). It should be taken into careful consideration when developing entrepreneurship education on all the school levels as the Finnish development plan also emphasises (Ministry of Education and Culture 2012). The graduates should be able 'to think in new ways, and have the courage to meet and adapt to the challenges facing them' (EURACE 2012) as it is in the LbD-based entrepreneurship education. ■

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**LAUREA**  
UNIVERSITY OF APPLIED SCIENCES



Katariina Raij (ed.)

# *LEARNING BY DEVELOPING ACTION MODEL*

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Learning by Developing action model book aims to describe the LbD model as a pedagogical development process at Laurea University of Applied Sciences. It is made up of different, independent peer reviewed articles, which look at LbD from different perspectives.

The articles direct you to the identification of the LbD action model, its philosophical bases and knowledge type that is convenient for applied research work. Furthermore, the articles show that the decision of recognizing LbD as Laurea's main strategy led to the development of leadership that enables the further development of LbD and its implementation in all Laurea's focus areas. Some of the articles, in turn, give examples of how to apply LbD in carrying out different research and development projects and an example of how LbD enables career planning.